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ORIGINAL ARTICLES.

NOTE ON THE TREATMENT OF SYPHILIS BY THE HYPODERMATIC INJECTION OF CALOMEL.¹

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THE treatment of syphilis by the intramuscular injection of calomel, as first practised by Scarenzio, in 1864, was prominently brought to the notice of the profession in Germany by Neisser, in September, 1885. Since that time a large number of communications upon this subject have appeared in the German, and more recently in the French journals. It is a remarkable fact, however, that this method of treatment has received but little notice among English and American physicians. Two papers only, those of Bloom and Morrow, have thus far appeared in American literature. Neither of these has embodied any extended clinical observations, a fact that is more noteworthy in view of the multiplying reports of the growth of this method of treating syphilis on the Continent, and especially in Germany.

The object of the present communication is to call attention to the details of this treatment as practised by the writer, and its results in a limited series of cases. The method is the natural outcome of efforts to render the treatment of syphilis more exact, and to keep it more completely within the control of the physician by the administration of specific remedies hypodermatically. It marks a step in the advance of the therapeutics of syphilis beyond the hypodermatic use of the soluble salts of mercury, as the bichloride, formerly advocated, and still occasionally employed in cases in which it is necessary to obtain the full effect of mercury rapidly. The difference between the therapeutic effects of the soluble and the insoluble mercurial salts hypodermatically injected is, however, an important one. In the case of the former, absorption readily occurs, and the effects of the drug are manifested with great promptitude; thus, Hutchinson quotes Bloxam as saying that one-third of a grain of bichloride of mercury dissolved in twenty drops of water and repeated hypodermatically on three consecutive days, will usually salivate freely; whereas the insol-

uble salts, introduced by the hypodermatic method, undergo chemical changes in the presence of the fluids of the tissues with comparative slowness, thus keeping up a prolonged and relatively mild influence until their chemical conversion and absorption are completed. The gradual nature of this process is shown by the fact that, in one of my cases, slight ptialism occurred on the ninth day after the injection of one grain of calomel. Much difference of opinion has been expressed as regards the relative advantages of the mode of treatment under consideration; the greater number, however, of those who have published their observations regard it as possessing certain positive advantages over the methods hitherto practised. Among these advantages may be named the following:

A. As over the administration of the preparations of mercury by the mouth:

1. The absence of any directly unfavorable influence upon the digestive apparatus (nausea, loss of appetite, colic, diarrhoea), especially in cases where mercury in sufficient doses is not well borne.

2. Precision of dosage.

3. Control of the administration by the physician, and, therefore, better opportunity, especially in private practice, to observe the effect of the drug, as well as the general condition of the patient, at fixed intervals.

4. Simplification of the treatment as regards the patient himself, and diminution of the liability of his condition becoming known.

5. Promptness of action.

6. Diminished risks of salivation.

B. As over treatment by inunction, in addition to the above advantages, we have:

1. Absolute cleanliness. This point is of much importance in private practice. Mercurial inunctions are not acceptable to the better class of patients, and are feasible only in cases where the symptoms are urgent, and the patient fully realizes the gravity of the situation.

2. Convenience of administration in all respects.

C. As over the treatment by fumigation, etc., in addition to the above, we have:

1. Comparative safety of the method of treatment.

2. Absence of the necessity for attendants, and for the use of apparatus of any form on the part of the patient.

D. As over other forms of treatment in ordinary use, the fact that stubbornly rebellious symptoms

¹ Read before the College of Physicians of Philadelphia, April 4, 1888.

often yield with promptness to hypodermatic injections of the insoluble salts.

The disadvantages of this treatment, as compared with the methods in general use, are:

1. Pain.

2. Danger of the formation of abscesses.

It may be said at this point that both of these disadvantages are reduced to a minimum by attention to the details of the little operation, and especially by the observance of the rule to introduce the medicament deeply into the substance of the muscle.

Some degree of burning pain is, however, produced by almost every injection. It is, as a rule, moderate, and comes to an end in the course of a few minutes. It is, on the contrary, however, sometimes quite severe. Exceptionally, the injection has caused no pain whatever beyond the mere prick of the needle.

The danger of the formation of abscesses is very slight when the injection is properly performed. Antisepsis must be complete as regards the material injected, the syringe, and the patient's skin at the point of puncture, and the calomel must be thrown deeply into the muscular substance, the needle being entered perpendicularly to the plane of the surface. The most convenient site is the lateral aspect of the gluteal region in the fossa behind the great trochanter. Smirnoff and Sofiantini state that calomel injections in this region are never followed by abscesses. Shadek says "abscesses never occur after deep intramuscular injections of the quicksilver preparations; coagulations—that is to say, nodes and induration at the point of injection—are rarely seen." Watrazewski saw only 4 abscesses follow 257 calomel injections. In my own private practice, in thirty-two injections in six patients once only slight fluctuation occurred at the seat of puncture. It disappeared in the course of a few days. In the cases treated at the Philadelphia Hospital, several small, superficial abscesses developed at the point of injection. These were among the earlier cases, and the procedure was practised without due regard to antisepsis.

On the other hand, Kopp and Chotzen counted 48 abscesses after 768 injections of 0.1 of a gramme (1.5 grains) of calomel. Krecke caused suppuration of the subcutaneous tissue in 21 instances out of 171 injections, while Monti, Bockhardt, and others, have abandoned the treatment on account of this danger.

There can be no doubt, in view of these varying results, that the occasional formation of abscesses is due to faults in technique. It is, therefore, largely, if not indeed wholly, avoidable, and constitutes no real objection to the treatment.

Two of the insoluble salts of mercury have been used, calomel and the yellow oxide. My own observations have been made with calomel alone. Neisser suspended the calomel in water with a little gum Arabic. The original formula was

Calomel,	
Sodii chlorat.	āā 5.0.
Aquæ dest.	50.0.
Mucilag. acaciæ	2.5.

The formula given by Bloom is,

Calomel by vapor	5.0 (Div).
Sodii chloridi	1.25 (3j).
Aquæ dest.	50.00 (f 3xiiijss).

It is obvious that this mixture defeats the object of the treatment in view of the rapid chemical changes by which bichloride of mercury and metallic mercury are formed at the expense of the calomel. After some experience, calomel was administered by various observers in suspension in liquid vaseline, by others, in pure olive oil. One of the difficulties of the injection of calomel is found in the liability of the needle of the ordinary hypodermatic syringe to become clogged. For this reason both the vaseline and oil are objectionable. My own injections, after a few early trials with the above substances, have been made with glycerine, as suggested by Smirnoff, and in order to secure greater accuracy of the dose and to overcome the tendency of the calomel to settle at the bottom of the vial, I order the doses from the apothecary, separately, in drachm vials, each containing

Calomel by vapor	grain 1.25
Glycerine (pure)	℥ xv.

A number of these vials are ordered at once, and are protected from the light. At the time of using, the cork is removed and a few minims of recently boiled water are forcibly injected from the needle of the syringe into the bottle in order to displace the calomel that has settled. The bottle is then thoroughly shaken until the calomel is suspended. The mixture is next poured into a little conical porcelain capsule, and quickly taken up through the nozzle of the syringe. The needle is then adjusted, the air expelled, and the operation performed in such a manner that the drug is thrown into the muscular mass. A grain of calomel, approximately, is the usual dose. The formula calls for one and a quarter grain for the reason that notwithstanding the greatest promptness, a certain amount of the calomel remains at the bottom of the capsule, and a little in the syringe itself.

The antiseptic precautions consist in thorough disinfection of the apparatus employed immediately before each injection by means of water boiled for some minutes in a test-tube, and in the careful cleansing of the skin at the point of puncture, by a solution of corrosive sublimate 1 : 1000. Burning pain usually follows, lasting for some minutes, and the circumscribed deep infiltration, which may be detected after the injection, becomes the seat of moderate tenderness, and more or less induration, lasting for some days, or even a week or two.

When we come to consider the transformations which the insoluble mercurial salts undergo when thus injected, we enter a field as yet but little investigated. It is probable that to a slight extent chemical reactions take place with certain organic principles, notably albumen, with the formation of albuminate of mercury, but that the greater part of the calomel undergoes in the constant presence of the alkaline fluids of the tissues gradual conversion into a double chloride of mercury and sodium. In this respect it follows the course of mercury introduced into the economy by way of the alimentary canal.

The following cases were treated in the Philadelphia Hospital, and the notes are condensed from the ward histories taken by Dr. Hutchinson, Resident Physician.

CASE I.—J. A., male, æt. forty-eight; admitted September 23, 1887, to Medical Ward 2, bed 10; Irish, a store-porter, moderate drinker. No hereditary tendency to disease of the nervous system. Chancre in 1861 or 1862; lymphatic enlargement; stubborn faucial and buccal symptoms; no recollection of a rash; prolonged treatment by mercury. In 1867, spinal symptoms, staggering gait, dizziness, and difficulty in holding his water. Systematic treatment for two years, with complete recovery. He then married; wife's first pregnancy resulted in miscarriage. The second child was healthy, and is still living. Four children born subsequently died in early infancy from "marasmus." In 1875 there was recurrence of the spinal symptoms; he then was treated in the Orthopædic Hospital; states that recovery rapidly took place under strychnia and increasing doses of iodide of potassium; continued well until the spring of 1887, when spinal symptoms recurred, together with loss of sexual power and desire, marked ataxia, burning sensations and numbness, especially in the limbs and feet. Knee-jerk much exaggerated in both legs. Examination of the eyes by Dr. de Schweinitz showed insufficiency of the internal recti, oval disks distinctly gray in the second layer, and distention of the lymph sheaths along the arteries and veins; no distinct retinal changes except haziness. Diagnosis as to eyes, probable early gray degeneration of the optic nerve. Hypodermatic treatment from Nov. 11, 1887, to Feb. 17, 1888; total number of injections, seven; result, very decided improvement. Patient transferred to the surgical ward, for the treatment of cystitis.

CASE II.—G. M., male, æt. thirty-seven; admitted to Medical Ward 2, bed 2, September 28, 1887. Primary sore occurred in 1876; secondary lesions of the mouth and throat, with falling of the hair; no recollection of a rash. Two years later, symmetrical, circumscribed ulcers of the shoulders and thighs, the scars of which remain. In 1879, sharp pains in the knees and ankles, lasting for some months, and disappearing under treatment. In 1886, acute pain and swelling of the knees and ankles, always aggravated at night, kept him in bed for eleven months. Upon admission to the Hospital, there was well-marked periostitis of the clavicles, tibiae, and radii.

Slight improvement only under large doses of iodide of potassium. On December 11, 1887, other medication having been stopped, he was given calomel hypodermatically, and had in all five injections at intervals of a fortnight. Very decided improvement. He was subsequently treated by Dr. Bruen with hypodermatic injections of bichloride of mercury.

CASE III.—J. J., male, æt. thirty-seven, Italian laborer, admitted to Medical Ward 8, bed 9, December 24, 1887, complaining of vague pains in various parts of the body and constant headache. The initial lesion occurred five weeks prior to admission. Lesions of the tonsils and throat. About January 16, 1888, well-characterized inacular eruption appeared over the whole body; enlargement of the superficial lymphatic glands. January 17th, hypodermatic treatment begun, and he received in all eight injections. On March 23d, the following note was made: "The patient better in every respect; the eruption has disappeared; the superficial lymphatics have undergone resolution; the patient free from pain and feels perfectly well. He has had at no time any stomatitis or diarrhoea." This patient received on one occasion two grains of calomel by hypodermatic injection. A superficial abscess occurred at the site of one of the injections.

CASE IV.—C. McG., male, aged twenty-eight, Irish, blacksmith, admitted to Medical Ward 8, bed 10, January 27, 1888. The initial lesion occurred October 1, 1887. He suffered with severe pains in the head, arms, and body; considerable induration about the point of the chancre on the dorsal aspect of the penis in the sulcus. Inguinal lymphatics much enlarged, also the post-cervical and epitrochlear glands. A profuse papular eruption covered the whole body. The treatment by calomel, hypodermatically, commenced January 28th, and he had in all nine injections. During the course of the treatment an abscess formed at the side of the neck, and two or three small abscesses formed in the gluteal region at the site of the injection. There was no stomatitis or diarrhoea. Within two months of the beginning of the treatment the sore on the penis had healed, the glands had undergone resolution to a considerable extent, and the eruption had disappeared, with the exception of a few scaly papules in the region of the lips, the lower part of the abdomen, and the thighs. March 15th, the patient was still doing well.

CASE V.—L. S., male, æt. twenty-five, roofer by occupation, American, admitted to Medical Ward 2, bed 18, February 25, 1888. He first observed the initial lesion some time during the autumn of 1887. There was phimosis, for which circumcision was performed. Secondary symptoms, sore throat, constant headache, enlargement of the superficial lymphatics, uniform papular rash over the body and legs. Treatment was commenced February 26th. In all six injections were given up to March 15th, when it was noted that the glands were undergoing resolution, that the rash had, to some extent, faded, that the headache had disappeared, and that his general condition was improving. There were no abscesses, no sore mouth, and no diarrhoea.

CASE VI.—J. F., æt. twenty-five, Irish, admitted to Medical Ward 8, bed 24, October 20, 1887. The initial lesion occurred fifteen months before admission, and was followed by non-suppurating enlargement of the glands of the groin. He had suffered with iritis in both eyes, but not at the same time. Severe periosteal and articular pains. Treatment by hypodermatic injections of calomel was commenced in January, 1888. After the second injection the patient refused to continue the treatment on account of the pain attending it.

The following cases were treated in private practice:

CASE VII.—X., male, æt. forty-five, a man of leisure, had the initial lesion in 1873. Intense and protracted secondary lesions affected the mucous membrane of the mouth and the cutaneous surface; prolonged mercurial treatment. A period of about five years passed without symptoms of any kind. In 1881 there appeared extensive, stubborn ulceration of the tongue, very little modified by treatment by mercurials and iodides, and local treatment with nitric acid. He came under my observation in 1882. There was deep serpiginous ulceration of the left border of the tongue, with extensive cicatrices of the right border; scaly eruption of the palms of both hands, not symmetrical, with deep, linear, fissured ulcers of the flexures; thick, scaly patches upon the soles and borders of both feet, with considerable thickening of the skin; a large, scaly patch on the left side of the scrotum. Decided improvement under alternating courses of iodide of potassium and protiodide of mercury, with frequent applications of nitrate of silver to the lingual ulcers. The latter in the course of a few months had healed, and since have only occasionally, and for short intervals, given trouble. The scaly patches have undergone occasional improvement, but never disappeared, notwithstanding the fact that the patient has been steadily under observation to this date, and for most of the time under treatment. Mercurial inunctions, although frequently proposed, have never been practised, owing to the patient's unwillingness to subject himself to the inconvenience. Treatment by hypodermatic injections commenced November 4, 1887, and was continued somewhat irregularly until the end of February, 1888, five injections in all having been administered. After the second injection, the scaly patches upon the hands, feet, and scrotum absolutely disappeared. On the ninth day after the first injection slight salivation was noted.

CASE VIII.—F. H., male, æt. thirty-two, a travelling salesman, came under observation with the initial lesion in April, 1886. I had the opportunity of seeing the female from whom the disease was contracted, then suffering from intense secondary symptoms. F. H. developed in due course of time superficial ulcers of both tonsils, mucous patches, macular rash, and enlargement of the superficial lymphatics; none of these symptoms, however, being intense. The general health continued good. After a year of systematic treatment with protiodide of mercury, with occasional brief intermissions, the patient still presented a few reddish, scaly papules

upon the forehead at the edge of the hair, upon the fingers and the legs; these lesions, however, not being symmetrical. In March, 1887, iodide of potassium was given in moderate doses, and continued until November, 1887, with the effect of modifying but not curing the cutaneous lesions.

Hypodermatic treatment commenced December 10, 1887. It was interrupted by the absence of the patient from the city until February 16, 1888, when the second injection was administered. The patient was unable to return until March 10th. He then stated that after the second injection a very decided improvement in his symptoms had occurred, and requested that the treatment should be regularly continued. From that day until the present time he has received four injections at intervals of a week, making six injections in all. The lesions have entirely disappeared.

CASE IX.—Mrs. R., widow, æt. thirty-eight, was sent to me from the central part of Pennsylvania, by a medical friend, February 10, 1888. She had been ill three years with a teasing cough, attended by scanty expectoration, occasional night-sweats, but without loss of flesh. She had consulted a number of physicians without benefit. The appetite was fairly good; the temperature as taken in the mouth at 4 P.M. was normal. There was dulness over the right lung anteriorly in the mammary region, with abundant subcrepitant and crepitant râles heard in the infra-scapular area and extending down the anterior border of the lung. Percussion elsewhere yields good resonance, and especially is this noted in the supra-clavicular region on both sides; examination of the sputum showed no bacilli.

February 27. The signs not having changed and the patient having a normal evening temperature, the history was carefully investigated. There was no hereditary tendency to phthisis. The patient married twelve years ago, a man somewhat younger than herself, whose occupation compelled him to be much absent from home. Within a year the wife miscarried at the sixth month. Two years later a child was born apparently healthy. It developed snuffles when one month old and died at the age of four months of "marasmus." The husband complained from the time of marriage of frequent severe headache. The attacks of headache after a time became so violent that he was obliged to discontinue his occupation for periods of several days together. Later the headaches were followed by confusion. There is no history of any special condition of the eyes nor of paralysis until about three years before his death. At this time he was seized with unconsciousness and irregular palsies. This attack was not followed by recovery; on the contrary, his mental condition became progressively feeble, he lost the power of locomotion and died paralytic one year ago.

Mrs. R., his widow, informs me that shortly after her marriage she had sore throat which lasted for more than a year despite treatment, and that at that time she almost wholly lost her hair, which, however, afterward grew in; does not recall any eruption.

29th. Treatment by hypodermatic injections was

commenced and has been continued up to the present time, five injections having thus far been administered. The area of percussion dulness is much less extensive, the subcrepitant râles are not heard, and a few crepitant râles only can be elicited on forced inspiration after efforts of coughing. The diagnosis in this case is not, perhaps, positive, but there is warrant for the assumption that these symptoms and signs are due to gummatous infiltration of the lung.

CASE X.—Mrs. S., æt. fifty-six, has suffered for many years with intense paroxysmal headaches accompanied by disturbance of hearing and hallucinations, followed by deep stupor at intervals of from six weeks to three months. These attacks last from two or three to six or eight days. In the intervals there is a feeling of confusion and dull headache, easily excited by mental or physical effort. General nutrition good. The eye grounds have been examined by the late Dr. Little and by Dr. William Thomson with negative results. The urine has never been albuminous. There is no cardiac disease. No history whatever is to be obtained in this case. The patient's husband presents no indications of having suffered from syphilis; there are three grown-up daughters all in good health. The oldest, however, has, to a well-marked degree, the physiognomy of hereditary syphilis with characteristic narrowing and notching of the upper central incisors. This deformity was so conspicuous that she had the teeth removed and replaced by artificial pivoted teeth. The other daughters show nothing characteristic. The symptoms of this patient never improved under mercurial treatment by the mouth or under iodide of potassium. On several occasions, mercurial inunctions have been followed by a cessation of the headaches for a period of some months, and a mitigation of the severity of the paroxysms upon their recurrence. On more than one occasion she has been pyralized as a result of this treatment. Treatment by the hypodermatic injection of calomel was commenced November 20, 1887, and continued at intervals of, at first, a week and later two weeks until the present time. Eleven injections in all have been administered. From the time of the commencement of this treatment, the patient, although suffering from occasional dull headache and the old sense of confusion, has had no recurrence of her attacks.

CASE XI.—N. S., female, æt. seventeen, the third child of syphilitic parents; with the typical facies of hereditary syphilis, prominent frontal bosses, sunken nose, and notched teeth, developed, at the age of fifteen, interstitial keratitis with double iritis resulting in total blindness. She was successfully treated by Dr. Charles S. Turnbull, improvement gradually taking place under frequently repeated small doses of biniodide of mercury. Within a year there has appeared a copious, thick-set, acneiform eruption, most copious over the sides of the face, the shoulders, and the thighs. This eruption has the color of lean ham; is papular and occasionally pustular. The hypodermatic treatment was commenced March 2, 1888, and has been repeated at intervals of ten days, three injections in

all having been administered up to the present time. Under this treatment the eruption has rapidly improved, a large proportion of the papules have entirely disappeared, and those which remain have lost their vivid copper-red color.

CASE XII.—B., æt. forty-one, was seen in consultation December 31, 1887, with Drs. C. M. Wilson and Murray Cheston. The details of the history were not known further than that he had been under the care of an ophthalmic surgeon for serious syphilitic eye trouble, which had improved under specific treatment. The patient had been disinclined to take care of himself, or to follow the directions given by his medical adviser. The day before he came under observation he had complained of unusually severe headache upon the left side, and had gradually lost power of the right arm and leg. When seen he was completely aphasic; the intelligence was clear. Two hypodermatic injections of calomel were administered, but in view of the gravity of the case and lack of experience in regard to this treatment, it was abandoned for mercurial inunctions, under which the patient rapidly regained his speech, and, to a certain extent, the use of the paralyzed side. The treatment is now being conducted by a female evangelist of the "faith-cure," under whose care the patient had been for some weeks prior to the attack in which I saw him.

Whole number of patients treated, twelve; injections, sixty-nine.

My thanks are due to Dr. Hutchinson, Resident Physician at the Philadelphia Hospital, for his interested pains taken in this clinical study, and to my colleagues, Drs. Bruen and Steinbach, for courtesies in regard to the observation of cases transferred, under the rules of the Hospital, to their wards.

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RECENT VIEWS REGARDING THE PATHOLOGY AND TREATMENT OF PERTUSSIS.¹

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THE present era is one of important and far-reaching change in medical opinion, more particularly as regards the essential nature of many of the most prevalent maladies. It is not at all surprising, therefore, to find recent views concerning pertussis differing materially from those which were accepted ten, or even five, years ago. With the advent of new ideas on pathology, new methods of treatment have naturally arisen. The purpose of this paper is to give a brief account of the more important views recently enunciated concerning the pathology and treatment of pertussis. The inquiry will also be pertinent, whether we have made any true progress in these directions, or whether we have to do merely with the rising tide of popular innovation.

In the first place, then, What is the nature of pertussis?

The drift of modern research runs almost exclusively in one direction, namely, that of regarding whooping-cough as a disease due to the invasion of microorganisms.

But while most modern observers are ready to admit the parasitic origin of the affection, considerable differences of opinion obtain regarding the particular kind of organism supposed to be specific, as well as the precise point of its location within the body.

As long ago as 1870, Letzerich² described a micro-organism alleged to be present in the sputum, and on the mucous membrane of the respiratory organs of patients having pertussis. His observations were soon confirmed by some writers, but others disputed his claims. The most recent researches have resulted in showing that the organisms of Letzerich are harmless saprophytes, and not the pathogenic microbes of pertussis.

The organism discovered by Tschamer³ is identical with the fungus known as *capnodium citri*, which is found on orange-peel and apples. It is certainly not the specific microbe of pertussis.

Deichler,⁴ of Frankfort, has also discovered an organism in this disease. And, strangely enough, it is not a minute plant, but an animal belonging to the protozoa. This author makes the rather guarded statement that, while the animalcule in question occurs only in pertussis, and evidently has some pathogenic significance, it may not be the sole exciting cause of the disease. It will strike the reader that a more modest microorganism has not of late years been discovered on German soil, a circumstance which probably accounts for the contempt in which it appears to be held by those German writers who take the trouble to mention it at all.

Henke⁵ has described small round cells, which he found in the sputum, and which he supposed to be peculiar to pertussis. From his description, however, it is clear that they were merely lymph corpuscles, showing in their interior the well-known phenomenon of molecular movement.

Poulet's⁶ *monas termo* and *bacterium termo* have nothing to do with pertussis, and the Frenchman's claims in an opposite direction cannot be upheld.

In 1883, Burger⁷ found a small rod-shaped organism in the sputum of patients having pertussis. He regards it as the exciting cause of the disease. But the methods employed by Burger are not above criticism, and Koch has refused to accept his arguments as convincing.⁸ Cultures and inoculation experiments were not made by Burger. From his description it is apparent that he did not see the bacillus of Afanasieff, presently to be considered.

All these observations (as well as a number of others that need not be mentioned here) were undeniably prompted by the *a priori* consideration that pertussis ought to be due to the presence of a micro-organism. Indeed, not a few authors have taken the ground that while we might not yet know all about the presumed microbe, treatment, in order to be rational and effectual, must be chiefly of the anti-parasitic kind.

So long as ten years ago Hagenbach⁹ maintained that whooping-cough was a catarrhal affection of the mucous membrane of the respiratory tract, associated with the invasion of fungi. According to this author, the characteristic paroxysms of cough are due to reflex action, starting from irritation of the terminal filaments of the superior laryngeal nerve.

¹ Deutsche med. Wochenschrift, April 7, 1887, and Jahrbuch für Kinderheilkunde, vol. x.

² Deutsche medizinische Zeitung, No. 37, 1886.

³ Deutsches Archiv für klin. Med., vol. xii. p. 630.

⁴ Comptes Rendus de l'Acad. des Sciences.

⁵ Berliner klin. Wochenschrift, No. 1, 1883.

⁶ Fortschritte der Medicin, vol. i. p. 108.

⁷ Gerhardt's Handbuch der Kinderkrankheiten, vol. ii. p. 551.

⁸ Read before the New York Academy of Medicine, Section on Pediatrics, April 25, 1888.

⁹ Virchow's Archiv, vol. xlix.

Widerhofer¹ describes whooping-cough as a bronchomycosis.

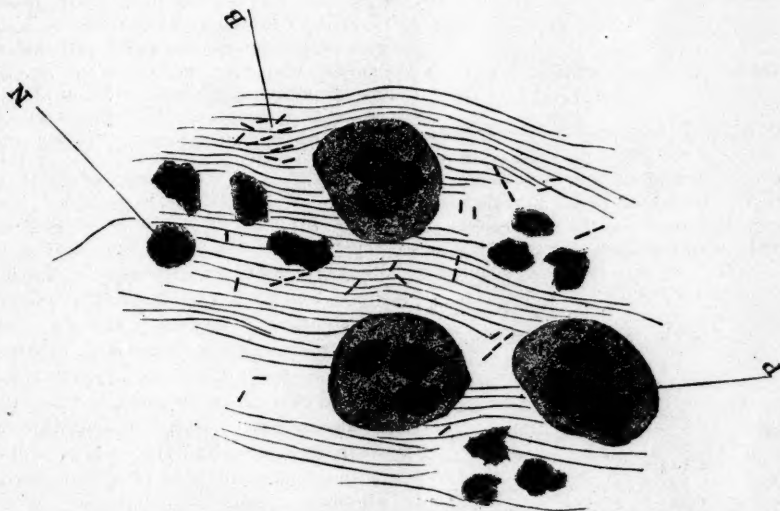
Baginsky² places the disease among the constitutional infectious maladies. But by calling it an infectious catarrh of the mucous membrane of the respiratory passages, he admits that it may just as well be classed with the "local contagious" maladies.

Michael,³ of Hamburg, following the suggestions of Hack, Schadowald, Sommerbrodt, Wille, and others, asserts that the disease is due to reflex disturbances, caused by the presence of microbes in the mucous membrane of the nose. This has led to the nasal treatment of the malady, a method which has found many followers.

rowing the language of the *Lancet* (modified in a few particulars), this author

"has succeeded in finding and cultivating what he believes to be the true bacillus of whooping-cough. This microbe differs distinctly from all other bacteria which have been described (Fig. 1). It is somewhat like Friedländer's pneumonia bacillus, but is shorter and thinner than the latter; besides, in gelatine it does not form nail-shaped cultures, those which are produced having no hemispherical head. Its potato cultures, too, are quite different from those obtained from Friedländer's bacillus. Afanasieff's bacillus exhibits a remarkable degree of vitality, for jelly cultures that have become dry and have been kept for four months, appearing under the microscope to

FIG. 1.



Sputum from a case of pertussis. *P*, pus corpuscle containing the specific bacilli; *N*, nuclei from broken-down corpuscles; *B*, group of bacilli. (The ordinary atmospheric bacteria, often found in the sputum, have been omitted from this drawing.)

The discussion on whooping-cough, which occurred last year at the German Congress of Internal Medicine,⁴ was an interesting debate on a very debatable subject. Vogel, Hagenbach, Michael, Heubner, Prior, Schliep, Sonnenberger, Binz, and Cohen, were the principal speakers. As already pointed out, the drift of opinion was in the direction of assuming the parasitic origin of the disease. No noteworthy discovery was announced, however, and as for treatment, there were about as many different opinions as there were participants in the discussion.

We come finally to the most recent pathological announcement, that of Afanasieff, which appeared in four successive numbers of the *St. Petersburg medicinsche Wochenschrift*, in October, 1887. Bor-

be more or less destroyed, are still capable of producing fresh cultures when fresh media are inoculated from the dried mass. Dr. Afanasieff's researches were chiefly made from the sputum of some of his own children, who were affected with whooping-cough. The mouth was well washed out with a permanganate of potash solution, and the mucus coughed up after the next paroxysm or two examined. In this mucus, after staining with methyl-violet, and occasionally in the pus-corpuscles contained in it, the bacilli could be seen with a magnifying power of from 700 to 1000 (Zeiss's eye-piece 3 or 4, $\frac{1}{17}$ oil immersion objective) as short rods (Figs. 2 and 3), sometime single, sometime in twos, or even in short chains running in the direction of the mucus, sometimes again in small clusters. Their length was from 0.6 μ to 2.2 μ . Other bacteria were also found. But they were numerically insignificant, as compared with the bacilli under consideration.

Pure cultures were easily made on agar-agar, meat-peptone jelly, potato, etc.. Dogs and rabbits were

¹ Allgemeine Wiener med. Zeitung, August 10 1886.

² Lehrbuch der Kinderkrankheiten, 1883.

³ Deutsche med. Wochenschrift, No. 5, 1886.

⁴ Deutsche medizinische Zeitung, May 2, 1887.

inoculated with a fluid culture mixed with chloride of sodium solution, some by means of injections into the trachea, others by direct injections into the lungs. All the animals were seriously affected, and many of them died. The symptoms were some-

FIG. 2.



Pure culture of the bacillus pertussis on agar-agar, twenty-three days old. (After Afanasieff.)

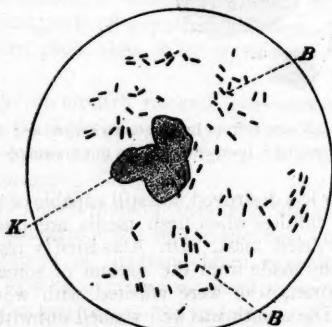
FIG. 3.



Pure culture of the bacillus pertussis on potato eleven days old. (After Afanasieff.)

what similar to those of whooping-cough, including cough, dyspnoea, and redness of the eyes. Many of the cases were complicated by broncho-pneumonia. On examining the bodies of those animals which died, the mucous membrane of the air-passages was found much reddened, and coated with a tenacious clear mucus, in which, as well as in the pneumonic patches in the lungs, the bacilli were found (Fig. 4). Similar appearances and the same bacilli were observed in the bodies of children who had died from whooping-cough."

FIG. 4.



Specimen taken from a patch of broncho-pneumonia artificially induced in a rabbit. *K*, pus corpuscle; *B*, bacilli pertussis. (After Afanasieff.)

In my opinion the bacteriological researches of this Russian observer are far more important and convincing than any hitherto undertaken.¹

¹ If I may be permitted a personal remark in this place, it is that I know the author to be a most careful, painstaking, and conscientious observer. Twelve years ago while we were studying together at Strasburg, under the supervision of Waldeyer and v. Recklinghausen, I had ample opportunities to admire the excellence of all his laboratory work. Afanasieff is the author of numerous contributions to histology and pathology, that have always been favorably received by recognized authorities.

The discovery of Afanasieff has been confirmed by a Russian observer, Semchenko. His papers were published in the *Vratch*, and the *Lancet* of January 7, 1888, mentions his views as follows:

"Dr. Semchenko, having investigated the whooping-cough bacteria described by Professor Afanasieff, has satisfied himself that they are the true specific cause of the affection. They appear in the sputum on the fourth day of the disease, if not still earlier. They go on developing in the tissues of the body, and simultaneously with their multiplication the severity of the disease increases. The bacteria disappear before the paroxysms of whooping-cough have ceased, generally when these have been reduced to from two to four in the twenty-four hours. When complications, such as catarrhal pneumonia, arise, they are accompanied by a great increase in the number of whooping-cough bacilli found in the sputum, the pneumonia developed under these circumstances having, according to Dr. Semchenko, several points of difference from ordinary attacks of catarrhal pneumonia. The examination of the sputum of whooping cough patients is apparently useful, not only for diagnostic purposes, but also as a guide to the prognosis of the course of the disease."

My own experience with the bacillus described by Afanasieff permits me to state that it is probably always present in pertussis. In the few cases in which I failed to find it, the method of obtaining the sputum was very likely at fault. I am unable, however, to confirm the assertion of Afanasieff, that the small pellet of mucus which is coughed up at the end of a paroxysm contains the pertussis bacilli in almost pure culture. I have invariably found other varieties of bacteria (such as commonly occur in the sputum of bronchitis) along with those of whooping-cough.

Moreover, it has not been my fortune to be able to demonstrate the bacillus pertussis, except in those cases where the clinical features of the disease were already so well marked, that a microscopical confirmation was not needed. Hence, I cannot agree with Semchenko in ascribing any great diagnostic significance to the discovery of these bacilli in a given case.

I had occasion to examine the sputum from a few cases of suspicious cough, that later developed into characteristic pertussis, but in none of them could I find the bacillus of Afanasieff, during that early stage.

Again, in two cases that were on the high-road to recovery I still found as many bacilli as during the height of the disease. In this respect also, my own observations are at variance with those reported by Semchenko.

I, nevertheless, have no doubt concerning the etiological significance of Afanasieff's discovery. But what practical benefit will result therefrom to the practitioner of medicine remains to be seen.

We certainly require no bacillus for diagnostic purposes. And in cases which are as yet doubtful, the bacillus is not found. At least such has been my rather limited experience.

Before closing this short account of recent pathological views on whooping-cough, mention should be made of the observations of v. Herff,¹ which are not without interest. This author, while suffering from pertussis, studied the appearance of his own larynx. According to him, there exists, during the entire course of the malady, a moderate amount of inflammation of the mucous membrane of the respiratory organs, from the posterior nares down to the bifurcation of the trachea. At the outset of the disease, this inflammation is but a mild catarrhal one. It gradually increases in severity, and again abates during the period of deservescence. In his own case, the inflammatory action was quite intense at the arytenoid cartilages and those of Wrisberg and Santorini. But the posterior wall of the larynx between the vocal cords, and the under surface of the epiglottis, were most severely affected. The vocal cords themselves appeared intact.

During the paroxysms, v. Herff claims to have seen a small pellet of mucus on the posterior aspect of the larynx, and on a level with the vocal cords. On removing this pellet the paroxysm came to an end at once. Irritation of this part of the larynx induced an attack. But a paroxysm was not produced by irritating other parts of the larynx. The author maintains, therefore, that this inflammatory action in the interarytenoid space is responsible for the spasmodic attacks characterizing pertussis. About the probable lodgement of microbes at this point he is strangely silent for a modern observer.

On examining the modern therapy of pertussis, we shall find that, in addition to the countless old remedies, almost every new drug has been tried. That the curability of an affection varies inversely in proportion to the number of remedies employed in its treatment is a trite experience. Judged by this rule, whooping-cough must still be regarded as a very intractable malady.

For obvious reasons, no attempt will be made, in this place, even to mention all the drugs that have been tried and recommended in pertussis, let alone discuss their merits.

Whatever is regarded by physicians as the essential something of the disease, that they have proceeded to attack. Those who look upon the infectious element as the chief factor of the disorder, naturally chose, and still choose other means of treatment than those who consider the respiratory catarrh as most important, or than those who hold that the morbidly heightened nervous irritability is chiefly responsible for the trouble. Those, finally, who

believe in the parasitic origin of pertussis have recourse to one or another of the various antiseptics or parasitocides. Mention has already been made of the nasalists, who direct all their efforts against the offending mucous membrane of the nose. They employ for this purpose sprays and insufflations of various antiseptics and sedatives. This treatment is said to prove very successful. In an editorial notice touching the nasal treatment of pertussis, the *Lancet* of January 15, 1887, says, "It is doubtful whether the theory of this fashionable method is correct; but, supposing it should be, it is equally dubious whether the good that results may not be from the mere treatment of catarrh as such, apart from its supposed cause." I fully concur in this view of the alleged success attending this method of treatment in whooping-cough.

It was at first proposed to place the various remedies in groups, a plan which has been followed by Chéron.¹ But the groups soon grew to such formidable proportions that the limits of this paper would have been unnecessarily extended, had that idea been carried out. I have preferred, for this reason, to examine only a few methods of treatment, and to present for consideration my personal views as to what constitutes rational therapy in the present state of our knowledge.

To begin with, whether we accept the parasitic doctrine of the disease or not, I believe that the policy of absolute non-interference, still persistently advocated in some quarters, should be emphatically condemned. If we cannot attack the affection at its roots, something can surely be done to mitigate its severity and to reduce the frequency of complications. There is probably not one among us who has not witnessed the sad plight that neglected cases will sometimes fall into. I would ask whether the large mortality still ascribed to pertussis is not, in a great measure, due to irrational medication rather than, as some maintain, to over-treatment?

It goes without saying that proper alimentation and the best hygienic conditions attainable, will always contribute toward the success of any plan of treatment. How difficult of accomplishment these measures are among the poor and shiftless, is only too well known. But, even among the better classes, the necessity of pure light, of fresh air, and of proper food, furnishes a text for almost daily preaching.

I am a firm believer also, in the propriety, or rather the necessity, of employing every possible means of protection for the unaffected members of a family. The time is surely past when the profession can countenance the opposite custom of encouraging the contagious diseases of childhood to affect as many members of one family at a time as possible. The mother may be anxious "to be done" with a

¹ Deutsches Archiv f. klin. Medizin, vol. xxxix.

¹ L'Union Médicale, October 18 and 20, 1887.

particular disease for her offspring. But I conceive it to be our duty to oppose energetically all such dangerous nonsense, even at the risk of incurring the wrath of some wiseacre guardian of the nursery.

As to particular drugs in the management of pertussis, I believe that individual preferences in respect are often the result of accidental causes. We certainly possess no specific for pertussis. It is to be remembered that there are seasonal and other variations in the intensity of the disease. If we accept the bacterial origin of pertussis, this varying degree of severity would depend upon the degree of infection. Some such explanation certainly appears necessary, in view of the fact that equally honest observers do not obtain equally good results from the same drugs.

Turning now to medicines, we find that narcotics and sedatives are as largely employed as ever. Many new combinations have indeed been put forward, but it does not appear that special virtues belong to any particular drug.

Vetlesen¹ has warmly advocated the use of belladonna combined with cannabis indica. He tells us that in 116 cases he obtained excellent results 83 times. In 30 patients the disease lasted only from 8 to 14 days. I have no personal experience to record with this combination, but on general principles I am hopelessly sceptical concerning such surprising results. I may say, in this connection, that I have employed belladonna unstintingly, a few times unwillingly, to the danger-point. Yet, I have never seen it shorten the duration of the disease, although the severity of the spasmodic cough was favorably influenced.

The bromides and chloral have found favor with many writers. For myself I have come to regard them as indispensable in the severer cases. I have fearlessly employed them alone or in combination.

The action of cocaine, locally as well as internally, is extolled by numerous observers. Prior recommends as highly efficacious, solutions having a strength up to 30 per cent., to be applied with a brush, to the pharynx and larynx. I have feared to employ the stronger solutions of cocaine, and the weaker ones (up to 4 per cent) have not given me much satisfaction.

By several writers the various salts of quinine (Binz, for example, favoring large doses of the tannate) have been strongly urged for internal as well as local use. My own experience with quinine is so slight that I am not justified in commenting on its utility.

Carbolic acid, iodoform, corrosive sublimate, resorcin, the salicylates, pure benzol, eucalyptus, thymol, boric acid, in fact every known antiseptic and parasiticide, has found its champion. Why any particular member of this group should be so much

more beneficial than all the others, I am unable to comprehend. The use of antiseptic sprays, provided always that the patients are old enough to tolerate the necessary manipulations, would appear to be a rational means of procedure. I am bound to confess, however, that in my hands they have yielded less flattering results than I anticipated, after reading the glowing accounts of the successes of others.

I would put these questions before you: If pertussis is due to the irritation of toxic substances (ptomaines) produced by specific microbes, are we really fulfilling the indications of the disease, by incorporating other poisons into the system, impotent to kill the bacteria, but yet powerful enough to harm the young patients?

In other words, is not this much-vaunted specific medication of pertussis an illusion and a snare?

Is it not, after all, more rational so to fortify the system, that in what has been termed the "cellulomicrobial warfare," the cells may be the victors and not the vanquished?

Is it not safer and easier to assist the cells to fight their battle, than to attempt to kill the rapidly multiplying bacteria that are already lodged within them?

Although I have deprecated the habit of recommending particular drugs on the strength of gratifying personal experience, I cannot refrain from alluding to the use of antipyrin in pertussis. Dr. Sonnenberger,¹ of Worms, was the first to call attention to this new drug in the treatment of whooping-cough. He claimed such surprisingly good results from its employment that my sceptical faculty was immediately fanned into activity. Nevertheless, so far as my own limited experience goes, I must own that antipyrin has with me a better record than any other one drug. I can claim no cures from antipyrin. But what the drug has appeared to me to favor, was an easy course of the disease to final recovery, a mitigation of the paroxysms, especially at night, possibly a reduction in their number, and certainly a freedom from complications. This is higher praise than I can conscientiously bestow upon any other method of treatment. But I am far from claiming as much as Sonnenberger, for antipyrin, that author asserting it to be distinctly curative. As to the method of its employment, I have followed the directions of Sonnenberger, who gives one-seventh of a grain to very young children, and gradually increases the dose according to the age of the child. To adults he gives fifteen grains. The medicine is administered three times daily, and sometimes once during the night. Children take it readily when dissolved in a little water and raspberry syrup. The remedy should be continued throughout the attack.

¹ Norsk Mag. f. Laegevidenskaben, No. 6, 1886.

¹ Deutsche med. Wochenschrift, April 7, 1887.

I have said nothing about fumigation with sulphurous acid, a method urged for adoption by Mohn,¹ because I have not tried it. Antiseptic inhalations and others, in the pneumatic cabinet, as particularly advocated by a Dutch physician,² may also be mentioned here. I have not employed this method, and doubt whether it will find favor with the profession.

When a French physician asserts in all seriousness, that he cures whooping-cough by cauterizing the ulcerations on the under surface of the tongue,³ we can only assure him that French pertussis and American pertussis are distinct and different maladies. As a summary allow me to submit the following conclusions:

1. There is constantly associated with whooping-cough a special microorganism, discovered by Afanasieff.
2. This microbe is a small bacillus, having properties that distinguish it from all other known bacteria.
3. The "bacillus pertussis" (*bacillus tussis convulsiva Afanasieff*) can be readily demonstrated in the sputum of patients having the disease.
4. While its etiological significance appears established, it does not possess much diagnostic importance, since it is found only after the clinical features of the disease are already well marked.
5. The treatment of pertussis has not yet been materially advanced by this discovery.
6. Antiseptics locally applied do not appear to shorten the duration of the disease.
7. Hygiene and judicious alimentation are, in the present state of our knowledge, of, at least, equal importance with medicinal treatment.
8. Antipyrin and the bromides are reliable symptomatic drugs, and are devoid of danger.
9. A specific has not yet been found.
10. Abortive forms of pertussis may occur, but no plan of treatment now known can claim to have abortive efficacy.

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CONSIDERATIONS ON THE PATHOLOGY OF THE CÆCUM AND APPENDIX.⁴

BY JOSEPH RANSOHOFF, M.D., F.R.C.S.,
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WHEN Dupuytren,⁵ in 1826, had first called attention to the relation of pericæcal abscesses to those of the right iliac fossa, observations in this field were rapidly instituted by continental writers. In 1830

Goldbeck,¹ of Heidelberg, first suggested the term perityphlitis for all the inflammatory conditions of this region. In 1834 a step was taken in the right direction when Copeland² first differentiated lesions of the cæcum from those of the appendix, and another by Albers,³ who first described that special form since known as "typhlitis stercoralis." In 1836 and 1838 John Burne⁴ contributed, in two excellent articles, further knowledge concerning lesions of the cæcum and appendix. Within recent years particularly numerous articles on the diseases of this region have appeared, and as a result their proper nomenclature is being gradually determined.

There are most excellent reasons, anatomical and clinical, for separating inflammations here present, into those of the cæcum and those of the appendix; each to be subdivided into those of the part itself and those of its peritoneal investment. There is, it appears, a rational basis for the use of the terms typhlitis to indicate inflammation of the cæcum, perityphlitis to indicate a like condition of its serous coat. Appendicitis, following in the path of With⁵ and Fitz,⁶ should be reserved for inflammation of the appendix, and peri-appendicitis or appendicular peritonitis for that of its peritoneum.

Of the varieties of cæcal and appendicular inflammation, those of the appendix are of far more frequent occurrence in grave cases than those of the cæcum proper.

Yet it is equally certain that typhlitis is far from uncommon, although mortuary records fail to show it. In the investigations of the anatomy of the part, I was struck by the frequency with which evidence of chronic catarrh, in the form of patches of indolent venous coagulation, pigment spots, and superficial abrasions were encountered in the cæcum. In all such instances the scybalous contents were covered with a layer of opaque mucus. This catarrhal condition is by no means confined to those who are habitually constipated, but is often encountered in the young, in whom the dependent position of the cæcum makes it a favorite seat for the retention of indigestible food. From this condition there is only a step, though a long one, to the typhlitis stercoralis of German writers, which, though doubtless of frequent occurrence, generally ends in recovery, and is, therefore, not anatomically demonstrated.

Given, however, a continuance of the cause, which, in contradistinction to that of peri-appendicitis, is rarely a foreign body, and the erosion be-

¹ Revue des Sciences médicales, and London Medical Record, February 15, 1887.

² Arntzenius, in Weekbl. von het Nederl., etc., No. 67, 1887. See Therapeutic Gazette, October 15, 1887.

³ Gazette des hôpitaux, and Revue de Laryngol.

⁴ An extract from a paper read before the Surgical Section of the American Medical Association, May 9, 1888.

⁵ Leçons Orales, v. iii, p. 12.

¹ Ueber eigenthümliche, entzündliche Geschwülste in der rechten Hüftbeingegegend, 1839.

² Dictionary, vol. i. p. 277, quoted by Fitz.

³ Beobacht. auf dem Gebiete d. Pathologie.

⁴ Medico-Chirurg. Trans., vol. xx. p. 201, and vol. xxii. p. 33.

⁵ London Med. Record, 1880, p. 213, quoted.

⁶ Amer. Journ. of Med. Sci., vol. 92, p. 321.

comes an ulcer. If the pressure effect of a hard fecal mass be the cause, the ulcer would probably be seated in the posterior wall of the cæcum, where, therefore, the localized peritonitis or intra-peritoneal abscess would be most likely to result. That such peritonitis may develop in any portion of the cæcal superficies is shown by the multiplicity of directions taken by perityphlitic abscesses in different cases. Whether the abscess presents itself above or below Poupart's ligament, the superficial position of the cæcum generally causes it to appear early. The only exception is that in which the pus travels toward the loins, under which circumstances the peri-cæcal trouble is probably secondary to a peri-renal, spinal, or iliac abscess.

The perforations which occur in the cæcum are not often produced by foreign bodies, although a number of such cases have been recorded. They are not infrequently produced by tuberculosis, although here, as in the case of foreign bodies, the appendix is preferably the part affected. The ulceration may, however, exist in the cæcum alone, the appendix remaining unaffected.

It is evident that the views entertained from time to time concerning the relative importance pathologically of the cæcum and appendix have vibrated like a pendulum. Dupuytren and his followers look on the cæcum as the part primarily at fault. Burne located disease in the same part, and Habershon¹ followed in the same direction. In the more recent contribution of Kraussold² and Berner, the appendix has been given greater prominence than ever before; whereas formerly, as Kraussold puts it, the appendix was treated in a stepmotherly way, there is a danger now that the cæcum will share this fate. While in the acuter and more fatal forms of perforative inflammations of this region the appendix doubtless plays the more important rôle; of twenty-five cases recently collected by me,³ only one being of the cæcum, it is unreasonable to ascribe every perforation to it from clinical evidence alone. Thus so admirable an observer as Fenwick⁴ mentions a case in which an abscess of the thigh was opened and discharged feces. In another instance an abscess terminated in a chronic vaginal fistula. Since both cases recovered, what evidence is there that in either the appendix was principally at fault? Fenwick, with others, rightly claims that the occlusion of the orifice of the appendix is a common cause of perforation. How can we logically, in such a case, account for the continuance of a copiously discharging fecal fistula? It appears to me much more probable that cases of this nature are primarily of cæcal origin.

On the other hand, the position of the appendix, the narrowness and tortuousness of its canal, the presence of a valve, the tendency of fecal or foreign matter to be retained in it, and the readiness with which it is displaced, all serve to make the appendix the principal seat of grave pericæcal inflammations. It is not remarkable, therefore, that autopsies will often reveal pathological conditions of the appendix where death has resulted from other causes. Züngel, Toft, and Kraussold have called particular attention to this fact. The latter writer even claimed that between the ages of twenty and seventy every third body will show traces of disease of the appendix, and that particularly in tubercular subjects it is often converted into a tubercular ulcer.

In over sixty examinations recently made, I found reasons for believing that in this section of the country, at least, the proportions quoted are entirely too large. In only eight cases were there either abnormal adhesions, unusually hard fecal masses, fibrous occlusions, or cicatrices on the surface. In only one instance was a foreign body, the stem of a raisin, encountered there. The discrepancy between these observations and those of the authors alluded to may be accounted for by the greater indulgence in animal diet by our people.¹ Speck calls attention to the greater frequency of the diseases of this region in Siberia, where the food, which is mostly vegetable, contains a large amount of indigestible residue.

The history of appendicitis is, for the most part, like that of inflammation in other narrow mucous canals with their catarrhal, ulcerative, and cicatricial phases. Recurring like typhlitis, and usually occurring like it about the period of adolescence, appendicitis is doubtless in many cases but the extension of disease from the cæcum. The catarrhal thickenings of Gerlach's valve or permanent stenosis of the appendicular orifice may cause the retention of excrement or mucus, either of which may form the nucleus of a concrement. This, or a foreign body, has been shown by Matterstock,² Fenwick, and Fitz, to be the cause of perforation in three-fifths of all cases. In other instances the appendix degenerates into a retention-cyst. Whatever the condition of the appendix, if at all grave, the peritoneum is sooner or later implicated. The favorable position of the appendix for forming adhesions and localizing abscesses without doubt often prevents a general peritonitis. On the other hand, the rupture of such adhesions or residuary abscesses may fatally infect the general peritoneum. Not infrequently, where there is no foreign body, the appendix degenerates into a firm fibrous cord, buried in adhesions and often difficult to find. These are the cases in which

¹ Guy's Hosp. Reports, vol. xi.

² Volkmann's klin. Saml., 191.

³ Case of J. J. Reed, Med. Record, 1886, i. p. 401.

⁴ Loc. cit.

¹ Quoted by Whittaker, Pepper's System of Medicine, vol. ii. p. 816.

² Gerh. Handle d. Kinderks. Treves, Brit. Med. Journ.

the progress of the appendicitis is made manifest from time to time by clinical phenomena, and in which the appendix, as the seat of recurring disease and a constant threat to the individual, may, as was recently done, be justifiably excised.

In a very fair proportion of cases (seven out of twenty-five) no foreign body or fecal mass is found, nor can the rupture of a cyst or tubercular ulceration account for the perforative peritonitis. In such instances the distal inch or two of the appendix is often found gangrenous, either adherent to the appendicular base or as a slough free in a pelvic abscess. This condition, it appears to me, is brought about by the displacement of the appendix and consequent torsion of its vessels; since the distal one-half inch or inch has no blood supply independent of the base, torsion of the latter would primarily involve the tip. A number of facts support this view. In the first instance, the appendix is not a pelvic organ under ordinary conditions. In perforative appendicitis of rapid development the abscess is, at least, often intrapelvic. In the second place the exciting cause of perforating appendicitis is, in one-fifth of the cases, a violence, such as might result from blows on the abdomen, excessive exercise, lifting, or vomiting. In the third place the gangrene is usually developed beyond the point of perforation. The latter is usually within one or two inches of the cæcal end; the gangrene, however, involves the tip. The subsequent pathological history of perforative appendicitis is outlined by rapidity of the effusion, and the facility or want of facility with which adhesions are formed. In many instances the contents of the appendix are thrown into the general peritoneal cavity and death ensues, with the rapidity and certainty pertaining to intestinal rupture from other causes and before adhesions form. In many cases, however, gradual drainage prepares the way for a limitation of the resulting abscess between the mesentery and mesenterium, and the small intestine within, and the cæcum without the omentum in front and behind all the reflections of the peritoneum over the psoas and eventually over the iliac fascia. Is it not possible, therefore, that except in foudroyante cases the danger of general peritonitis is somewhat overestimated.

When an abscess forms, what is more probable than its more or less rapid course toward the surface, above or below Poupart's ligament, toward the hypogastrium, or, as I have recently seen it, guided by an ommental hernia toward the scrotum? Or that in other instances burrowing through the iliac fascia it should tend toward the loin; or opening into some hollow viscus, like the cæcum, rectum, or vagina, eventually to be recovered from?

It is beyond the scope of this paper to discuss the diagnosis and treatment of the conditions considered. But I may be permitted to append the fol-

lowing aphorisms. "Place not your faith in exploratory punctures; operate early and by lateral laparotomy when the symptoms are of the gravest, and a tumor is not forthcoming; reserving the incision parallel to Poupart's ligament for abscesses that are palpable."

HOSPITAL NOTES.

BAYVIEW HOSPITAL, BALTIMORE.

SURGICAL SERVICE OF W. B. PLATT, M.D., F.R.C.S.

FIBRO-ADENO-ENCHONDROMA OF THE NASO-PHARYNX;
LONGITUDINAL DIVISION OF THE SOFT PALATE; RE-
MOVAL OF THE TUMOR; PRIMARY UNION.

M. S., colored, aged forty-four years, widow, admitted Feb. 23, 1887. Patient has had a sore throat for a year, with difficulty of breathing through the nose. Upon one occasion, at night, she expectorated a mouthful of blood, some coming from the nose at the same time, no other hemorrhage; suffers with almost constant pain through the temples. This has been worse the last month. Menses regular; anorexia; insomnia; constipation. No history or evidence of syphilis. Patient is a thin, light-colored negress; voice weak; articulation indistinct. There is an oval, movable, smooth, subcutaneous lump, the size of a pigeon's-egg, just below the lobe of the left ear. This is said to have been there eight years. With widely opened mouth, the soft palate was seen to be very tense, and thrust downward so as nearly to touch the depressed tongue; uvula pushed far to the right; the velum glided to the right in the first act of swallowing. With the finger a slightly uneven, rounded, very hard, immovable body, apparently about an inch and a half in diameter, was felt arising from the right side of the naso-pharynx. The finger could not be pushed up behind the soft palate for further examination, nor was a rhinoscopic view possible.

Operation.—The patient being etherized, and the mouth held open by a dilating screw gag, the velum was incised in what was, at the time, the median line, although the line of the septum had been carried far to the right by the pressure of the growth. The incision lay over the most prominent part of the growth, and the velum was, previous to this, tightly stretched over it. The cut extended from the hard palate entirely through the soft palate. Owing to the projecting African jaws, the distance from the mouth to the posterior pharyngeal wall was much greater than is usual in Caucasians, and rendered the operation more difficult. Various previous patient attempts under ether to pass a wire around the growth through the nostril had failed. Neither was it possible to encircle it by passing the snare upward from the pharynx before dividing the velum. The palate on each side immediately retracted, leaving a Λ -shaped gap, through which the tumor projected. A galvano-cautery wire was then passed around the growth and tightened. The current was not strong enough to heat the wire, and a steel wire of a Jarvis's snare was, after some difficulty, placed in position. The tumor was nearly sessile, and extended downward and backward from the margin of the left Eustachian tube, as near as could be determined. The

wire was slowly tightened; about twenty minutes being occupied in the process. A moderate, but steady, flow of blood took place from the point of attachment of the tumor, which was finally controlled by sponges saturated with a saturated solution of ferric alum. The incision in the palate was now brought together by five silver sutures. The wound united by first intention. The sutures were removed in from five to nine days; the only unpleasant symptom was some pain in the region of the left Eustachian tube, and also a slight toothache, due to prolonged pressure of the gag. At the end of four weeks the patient could speak with nearly normal articulation, and swallow without trouble. For three or four weeks there was considerable induration at the former site of the tumor. This gradually disappeared.

The growth measured nearly an inch and a half in its greatest diameter, and an inch across the divided pedicle. A microscopic examination of it at the Johns Hopkins Pathological Laboratory, which was kindly made by Professor Welch, showed the tumor to be a fibro-adenoma, containing occasional cartilage cells.

REMARKS.—The choice of an operation for the removal of a naso-pharyngeal growth depends upon its size, location, and character. When there is no reason to believe the tumor to be malignant, and it is possible to surround it by a snare, this should always be attempted through the nares, or, if the nostrils be entirely obstructed, upward through the pharynx around the growth. When these two procedures are not practicable, the entire velum may be divided longitudinally, as in this case, according to the recommendation of Manne; or if the growth be smaller, by a large button-hole, as proposed by Maisonneuve. If the growth be situated still further forward, Nélaton advises trephining the hard palate in addition. Huguier, and others after him, used a transverse incision in the soft palate, to secure better union, and in order to interfere less with the function of the palate. Such interference would probably, as a matter of fact, be greater from the tearing of the tissues in the transverse operation than from the clean longitudinal cut. The operations mentioned are but a fraction of the "preliminary operations" which may be necessary before proceeding with the removal of the growth itself. They are, however, the principal palatine preliminary operations; the others, the maxillary, the osteoplastic, and nasal operations, are intended for new growths, or for such as from their location or size cannot be reached through the divided palate. The danger in these operations is hemorrhage, and it is sometimes necessary to perform a preliminary tracheotomy, inserting Trendelenburg's canula, or else filling the larynx with sponges. When hemorrhage does take place, it is to be controlled by pressure, hot water, artery forceps, or where none of these is practicable, by styptics, preferably ferric alum (saturated solution) or ferric persulphate. It is usually recommended to leave the naso-pharynx stuffed with sponges after operation, until the danger of a recurrent hemorrhage is past. Nothing of the kind was done in this case. The bleeding was once thoroughly stopped, and the pharynx simply washed out several times daily by thorough gargling. The patient was shown at the Clinical Society of Baltimore eight weeks after the operation. When seen again by me, six months later, there was no return of the growth.

MEDICAL PROGRESS.

A Successful Splenectomy.—In the *Annali Clinici dell' Ospedale degli Incurabili in Napoli* for May and June, 1887, PROF. AGOSTINO CASINI has recorded a case in which he successfully excised a "wandering" and hypertrophied spleen. The patient was a woman, aged twenty-two, who for four years had suffered from frequent attacks of malarial fever, sometimes accompanied by jaundice. Three years before she came under the care of Dr. Casini she became conscious of uneasy dragging sensations in the abdomen, and noticed a tumor in that region which steadily increased in size, whilst her general health became gradually worse. On examination the belly was seen to be enlarged, especially on the left side. A smooth, rounded, rather hard swelling was felt occupying the forepart of the cavity; it extended upward nearly to the margin of the ribs, downward to the plevus, and laterally to a line passing downward from the anterior axillary border. The tumor was freely movable, and was not adherent to the abdominal parietes. It could be rotated so that its upper edge was directed forward perpendicularly to the wall of the belly, the anterior surface thus becoming the inferior, and the posterior the upper. On the rounded margin a notch could be distinctly felt. The mass could be moved upward and to the left, so as to be almost covered by the ribs; displacement toward the right, on the other hand, caused a feeling of dragging and stretching on the left side. There was some fluid in the abdominal cavity. On April 20, Professor Casini opened the abdomen in the middle line, and removed the spleen. There were some adhesions to the kidney, and especially to the pancreas, which formed part of the pedicle. The latter gave a good deal of trouble, and had to be tied in a number of separate pieces, a portion of the pancreas, which could not be detached, being seized between the blades of a pair of forceps, and crushed off; the stump of the pancreas was then stitched up, and, after careful cleansing of the peritoneum, the abdomen was closed. Very little blood was lost in spite of the difficulty which had been felt in securing the vessel of the pedicle. The spleen weighed three kilogrammes and 100 grammes (6½ lbs.). The temperature on the first and second day was 100.4° F., after which it fell to a point a little above normal. On the seventh day the sutures were removed from the abdominal wound, which had healed by first intention. A few days later a small abscess formed in the abdomen on the left side above the level of the umbilicus; the patient, however, soon afterward passed a quantity of pus in her urine, and continued to do so for some time, the swelling meanwhile gradually disappearing. Toward the end of May she was discharged cured, and six months later she was still in perfect health. This makes the ninth splenectomy that has been performed in Italy, the first having been done in 1874. Of these operations five had a fatal result; the remaining four, which have all been performed since 1881, have been successful.—*British Medical Journal*, May 12, 1888.

Rectal Medication for Children.—JACOBI writes that the rectum of the infant and child has been rising in the estimation of the practitioner since the times of thermometry;

for it is certainly the safest and easiest place to take the temperature. For therapeutical measures it is also invaluable.

The rectum of the young is straight, the sacrum but little concave, the sphincter ani feeble, and self-control gets developed but gradually. Thus a rectal injection is easily either allowed to flow out or vehemently expelled. Therefore one which is expected to be retained must not irritate. The blandest and mildest is a solution of six or seven parts of chloride of sodium in a thousand parts of water. This may be made to serve as a vehicle of medicine, unless incompatible with the latter, which will be but rare. An enema which is to be retained must be tepid and small in quantity, half an ounce, or little more or less, and carried up well into the rectum, for the immediate contact with the sphincter may produce its expulsion. Care must be taken to exclude air from the syringe, which, for small quantities, must be a well-fitting piston syringe, of hard rubber, with a long nozzle. This must be well oiled, and introduced, not straight, but with a gentle turn, so as to avoid folds in the anal mucous membrane (in the same way a thermometer *ought* to be introduced). The nozzle must not be too thin, as it is liable to be caught; the smallest nozzles of fountain syringes are, therefore, in most cases improper; the larger size is more appropriate for any age. The injection must be made while the patient is lying on his side, not on his belly, over the lap of the nurse, for in this position the space inside the narrow infantile pelvis is reduced to almost nothing.—*Archives of Pediatrics*, May, 1888.

The Treatment of Tonsillitis.—HILLABY, in the *Practitioner* for April, 1888, describes his mode of treatment as follows:

Open the bowels freely with a good dose of *mistura sennæ* co., put the patient on milk diet, and administer the following draught:

R.—Sodii salicylatis grs. x-xv.
Tincturæ aurantii corticis m. x.
Aquæ ad ʒj.—M.

To be taken every four hours.

When the inflammation in the throat begins to subside, reduce the dose of salicylate and continue to give it in smaller doses for a few days after all throat symptoms have disappeared.

Conception after Ovariectomy.—WETHERILL, in the *Lancet* of April 28, 1888, reports the following extraordinary case, in which Dr. Bantock reports his operation as follows:

"The case was one of fibroid tumor of the uterus, in a state of cystiform degeneration. There were adhesions to the omentum (rather extensive and requiring many ligatures) and to the parietes low down on the left side of the middle line. After these were all broken down and bleeding points secured by ligatures, I tried to lift out the tumor, but it so invaded the broad ligament on the right side that its removal in the usual way was impossible. Fancying there was nothing now to be done but to remove the ovaries with the view of checking the growth of the tumor, I removed the left ovary, which was easily got at. The *right* ovary was nowhere to be found. I now looked again very carefully at the tumor, and, as it felt as if there might be some deep-seated fluid in it, I

tapped it, and got out nearly a pint of dirty-looking fluid. There was nothing for it now but to lay open this cavity; its interior presented a very ragged appearance, characteristic of these cases. There was no way of removing the tumor, either by enucleation or along with the uterus, with the slightest prospect of success, so I laid the cavity very freely open in the direction of the abdominal wound, and stitched the edges to the corresponding edges of the parietes, leaving a large opening into the cyst. This I stuffed with iodized cotton-wool, after freely applying the thermo-cautery to the bleeding surfaces of a deep incision into a rounded portion of the tumor. The wound was kept open from time to time, small portions of the tumor were cut away (this always requiring the cautery to stop the bleeding), and a pointed cautery thrust into the tumor in various directions. Suffice it to say that in about three months the tumor had wasted away, so that very little of it remained, and, after a short time longer, the wound closed."

So much for the operation. The patient left the hospital a mere shadow of herself before her illness. Her life seems to have trembled in the balance for some time after the operation. Returning home, she came under my care. For four years she enjoyed fairly good health, having nothing more than an occasional attack of cystitis. She was now quite *embonpoint* and married. Then comes the marvellous portion of her history. She conceives! During the whole period of gestation she suffered from nothing except a little inability to hold her urine. This was worse when she had a little cold, each expulsive effort to cough causing her to expel the urine involuntarily. This, however, yielded to belladonna, morphia, and spirits of nitrous ether. In July, 1887, I delivered her of a fine healthy child. The duration of labor was quite normal, occupying in all about twelve hours. I forgot to mention that the cause of the involuntary acts of micturition might have been the anteversion of the pregnant uterus; in fact, she had pendulous abdomen. Since that time she has been in perfect health. She nurses her baby boy herself.

Oil of Turpentine as a Hæmostatic in Epistaxis.—BILL-ROTH has found oil of turpentine an excellent hæmostatic in epistaxis, and ERNYEI reports a case recently treated, which had resisted other treatment, and which yielded to three tampons dipped in oil of turpentine, after bleeding had persisted for eight days.—*Correspondenz-Blatt für Schweizer Aerzte*, May 1, 1888.

Digitalin, Hypodermatically.—HUCHARD, in the *Revue Gén. de Clin. et de Thér.* of April 12, 1888, reports the following formula for the hypodermatic use of digitalin:

Digitalin. gr. 1½.
Alcohol. ʒ 10¼.
Aquæ ʒ 10¼.

Dose.—Ten drops, injected deeply into the muscles of the nates or back, twice daily.

The Treatment of Diabetes.—HOFMEISTER, of Carlsbad, in the *British Medical Journal* of May 5, 1888 concludes that:

1. We are in total ignorance as to the etiology of diabetes mellitus.
2. The quantity of sugar found in the urine is of no

significance at all in judging of the severity and danger of any particular case of diabetes.

3. The smallest traces of sugar, found only by most careful chemical examination of the urine, are of considerable importance in a great many cases, so that they cannot be left out of account in trying to arrive at a correct diagnosis and prognosis.

4. The dietetic treatment must be adapted to the special requirements of each case, as there are cases in which without regard to the amount of sugar excreted, complete abstinence from starchy matters is not only useless, but directly injurious.

5. According to the present knowledge, strict antidiabetic diet, combined with the use of the waters of Carlsbad, is the best method of treating diabetes mellitus.

MAYER, also, of Carlsbad, believes (*Ibid.*) that as far as the treatment is concerned, it appears that everything should be avoided that may impair the action of the heart and kidneys; for we know that organs which are in a state of hyperactivity easily become diseased. I may here refer to the frequent occurrence of valvular disease in nephritis, and of nephritis in diabetes. The latter I have found recorded in 30 out of 66 cases contained in the records of the Pathological Institute of Berlin. Stokvis has forcibly drawn attention to the same point in his able paper on diabetes read before the late Medical Congress at Wiesbaden, while I have seen nephritis in 64 out of 380 cases, although not frequently in the form of granular contracted kidney.

The principle of sparing the suffering organs as much as possible has, in my opinion, to be carried out particularly as regards diet. In many cases a rigid nitrogenous diet cannot be enforced. I have, on this account, during the last few years, frequently added milk to the diabetic diet, and can fully corroborate the favorable testimony which Hoffmann gave on this point before the late Medical Congress.

A Plan to Obtain Vaccine Lymph without Rupturing the Pustules.—DR. GRIGG, of Queen Charlotte's Lying-in Hospital, suggests a method of obtaining vaccine lymph without rupturing the vesicles, which must commend itself to the practitioner. The method has the further advantage of increasing the supply obtainable. He allows a drop of pure glycerine to fall upon the ripe vesicle, and this has the effect of withdrawing the lymph from the interior without any solution of continuity of the investing membrane. Judging from the results obtained by Dr. Grigg, in nearly three thousand cases, in only one of which did he fail to secure a satisfactory effect, the lymph thus obtained is fully as active as ordinary lymph. Dr. Grigg remarks incidentally that lymph obtained from infants less than fifteen days of age is always scanty in amount and unreliable. He also records the fact that in cases where only one of the punctures proves successful in the first instance, a more satisfactory result may be obtained by revaccination from the solitary vesicle, which remains stationary until the second crop attains the period of maturity, and then the whole number go through the retrograde changes together.—*Medical Press*, April 18, 1888.

General Rules for Cataract Operations.—KNAPP, in the *Archives of Ophthalmology* for March, 1888, lays down the following general rules for cataract operations:

1. Keep out bacteria or wash them off by germless, unirritating liquids: boiled water, boric acid and other indifferent substances dissolved in boiled water.

2. Prevent the multiplication of germs by antiseptics: watery mercuric bichloride, or alcoholic biniodide, chlorine water, nitrate of silver, and other substances in very weak solutions.

3. Perform the operation with the utmost degree of neatness and accuracy, and with a minimum of traumatism, avoiding bruising, scratching, and tearing of any kind, so as to reduce septic conditions to a minimum.

4. Endeavor to obtain primary union by freeing the wound from all foreign substances, by perfect coaptation of its edges, and by maintaining the greatest possible immobility of the organ until the closure of the section is firm.

5. Avoid constitutional infection of the wound. It is dangerous to operate for cataract as long as the constitution of a patient is under the active influence of a specific disease; for instance, articular rheumatism, acute or chronic suppuration, syphilis, and the like. In some incurable diseases—for instance, diabetes—we must select the time when the vitality of the patient is least reduced.

A Hæmostatic Pill.—HUCHARD prescribes:

Ergot,	
Quin. sulph.	aa grs. 30.
Pulv. fol. digital.,	
Extr. hyoscyami	aa gr. ½.
Ft. pil.	20 in number.

To be used as indications demand.

Phenacetin as an Antipyretic.—GRENFELL reports, in the *Practitioner* for May, 1888, ten cases of diseases attended by pyrexia in which phenacetin, in five grain doses, proved useful, as follows:

Phenacetin is a slightly reddish, inodorous and tasteless powder soluble with difficulty in water, a little more soluble in glycerine, but most readily in hot alcohol; it is insoluble in acids (except glacial acetic acid) or alkaline liquids. Though absolutely tasteless it is most conveniently administered in capsules with water, this method admitting of the most accurate dosage.

In cases of pyrexia the action of the drug begins within half an hour after administration. The patient generally perspires freely, and feels drowsy. Sleep often follows, and pain is relieved, while the patient always says that he feels more comfortable after it.

The most satisfactory dose for an adult is about eight grains, and children bear the drug well. Since the above notes were written, it has been extensively used as an antipyretic and as an analgesic in neuralgia, and with good results..

The Treatment of Ozæna by Inhalation.—NOQUET prescribes:

Chloral. hydrat.	gr. ¾
Acid. boric.	gr. 90
Glycerin. pur.	3 2½
Aq. lauro-cerasi	3 5
Aq. destill.	3 50

The spray should be thrown into the posterior nares, and the patient should expire it through the nostrils.—*Revue de Thérapieutique*, May 15, 1888.

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SATURDAY, JUNE 2, 1888.

THE PASSAGE OF GERMS THROUGH THE LUNGS.

ONE of the greatest difficulties in the germ theory of disease is that caused by our ignorance of the way in which the germs gain entrance to the body they infect. Experiment alone can never prove that an infection must arise in any given way. It can only show possibilities, while complete knowledge can only be gained by the slow lessons of general pathology and epidemiology. Nevertheless, it is necessary to learn all the possibilities of the relative ease with which various germs can cause infection, for as long as the impossibility of any one mode is not demonstrated, we cannot exclude it.

Most of the work heretofore done in experimental infection has been by feeding or inoculation. BUCHNER (*Münchener med. Wochenschrift*, Nos. 16 and 17, 1888) has recently made some interesting experiments in the inhalation of germs and has come to conclusions somewhat different from those heretofore held. The methods used consisted in exposing animals to a spray of dilute cultures of various bacteria, in such a way that only the finest mist of the spray reached them. They were thus not exposed to wetting through, and at the same time the minutest spray bubbles contained enough germs to produce the desired effect. Control experiments were made by feeding, so as to exclude accidental infection through the alimentary canal by swallowed spray. It was found that this accident was very rare, and also that the amount necessary to cause

infection through the intestinal tract is much larger than that for the lungs. The bacteria used were those of anthrax, with their spores, and those of chicken cholera and septicæmia.

It was learned very early that an irritative reaction hindered the passage of germs through the lung. Especially was this the case when large quantities of bacilli were used, and in these experiments so great was the irritation that a hemorrhagic pneumonia resulted. The best results, therefore, were obtained from cultures in which the bacilli had been killed by drying, so that the spores alone reached the lung in condition to multiply. The development of the bacilli was a rapid one, and in a few hours the increase could be demonstrated by the microscope and by cultures. Nor could there be any doubt that an entrance to the lung had been effected, for the pulmonary capillaries contained bacilli in quantities proportional to the time elapsing between inhalation and examination.

The mode of entrance is clearly and, in our opinion, accurately explained by Buchner. That it is not through the lymphatic circulation can be supposed by the rapidity with which it occurs. While Arnold's experiments in dust-inhalations go to prove that a passage through the lymphatic gland is almost impossible for these particles, experiments with tuberculosis and glanders demonstrate that infectious matter can pass through with comparative rapidity. In Buchner's experiments, however, the passage was so rapid that it could not be other than a direct one. Buchner explains the *modus operandi* by an action much like that of leucocytes in inflammation. The chemical irritation exerted on the walls of the capillaries causes the formation of stomata, through which the bacilli grow. These experiments, therefore, show that the idea of "intact lung" is one that must be considered with certain limits.

Buchner's experiments also show what forms of infectious material are best adapted to pass through the lungs. They are preëminently the blood parasites, or those which are able to live and multiply in the circulation. The germs of anthrax, recurrent fever, and malaria are the most striking examples of the blood parasites so far known, while those of tuberculosis, typhoid fever, and cholera occupy, according to our present knowledge, but a doubtful position among them.

In infections caused by blood parasites the point of entrance cannot always be found. So in one of Buchner's experiments the kidneys and spleen were

affected very early, although the lungs showed no macroscopic lesion. This, probably, explains the mode of infection in "rag-pickers' disease." Even in the case of germs not strictly blood parasites it is possible for them to penetrate the lung capillaries and be transported to that part of the body where they afterward set up morbid actions. Typhoid fever may sometimes be caused in this way.

It must be remembered, in studying the subject of infection through the lungs, that although a smaller quantity can affect the system in that way than through the alimentary canal, still, outside of laboratories, the latter mode must be by far the most frequent. It is only necessary to mention typhoid fever and cholera to indicate our meaning.

ANTISEPTIC PROPERTIES OF CHLOROFORM.

SALKOWSKI calls attention to the antiseptic properties of chloroform in an article in the *Deutsche med. Wochenschrift* of April 19, 1888. Having used chloroform for some years to preserve specimens of urine he was led to study its action on fermentative processes and certain pathogenic bacteria. Chloroform dissolves in water in the proportion of about 5 to 1000 by volume, and in that proportion protected from evaporation, prevents the fermentations due to bacteria, such as ammoniacal in urine, the alcoholic, lactic, milk, and hippuric, and the putrefaction of albuminous material, while the action of unorganized, soluble ferments—enzymes—as ptyalin, pepsin, trypsin, etc., is not affected. This latter fact was partially known before. In this way chloroform is particularly convenient in revealing the presence of minute quantities of ferments, the actions of which are only developed after some months. Microorganisms are avoided, the organic tissues are not acted on by the preservative, and the latter can be removed, at will, by evaporation.

Anthrax and cholera bacilli are easily killed by chloroform, though the anthrax spores resist its action. Among the manifold uses of chloroform are the following:

For preserving urine, urea solutions, watery solutions of ferments of all kinds, pathological fluids of all kinds, except blood which gradually coagulates; in digestion experiments, especially with trypsin, etc., and for preserving small anatomical preparations, chloroform water or the vapor alone may be used, except when extraction of blood coloring-matter would offer an objection.

Salkowski also points out some further uses of

chloroform which are worthy of trial. These are: the preparation of solutions for hypodermatic injection; as an intestinal antiseptic; and in case of need as an external antiseptic and disinfectant. It might also be used in mouth washes.

In a note Salkowski writes that most of the ethylic chlorine compounds possess antiseptic properties, though not excelling chloroform, and that the latter, from its volatility, is the one most available as a respiratory antiseptic. Further experiments are promised on this subject.

A NEW MIASMATIC DISEASE.

GERLIER has extended the list of cases of vertigo with palsy—*le vertige paralysant*—previously described, and has sought, in an article in the *Revue Médicale de la Suisse Romande* for January and February, 1888, to render the clinical picture of this curious disease more exact. The cases occurred at a number of scattered farms, in the neighborhood of Ferney, Switzerland. The sudden paroxysm, occurring, as a rule, in the afternoon, is characterized by disturbances of vision, transitory palsies, and spinal pain. The patient, seized at his work, all at once bows his head, leans upon any implement he happens to have, and, in the attitude of the peasant in Millet's picture, "The Angelus," awaits, immobile, the end of the attack. The attacks are much less common in the morning after a night's rest than later in the day. They are provoked by very trifling movements, excitement, and so forth. The duration of a single attack does not usually exceed one or two minutes, but they are apt to occur in series, extending through some hours.

Gerlier regards the disease as due to an infection which acts chiefly upon the nervous system, and which is derived from the surroundings of improperly drained stables.

THE Medical Society of New Jersey will hold its Annual Meeting at the Heath House, Schooley's Mountain, on Tuesday and Wednesday, June 12 and 13, 1888, commencing at 4 o'clock P. M., on Tuesday, under the Presidency of Dr. John W. Ward, of Trenton.

THE Ontario Medical Association holds its Eighth Annual Meeting at Toronto, on Wednesday and Thursday, June 13th and 14th next.

THE Twenty-third Annual Meeting of the Michigan State Medical Society will be held in Detroit,

Thursday and Friday, June 14 and 15, 1888, beginning at 10 o'clock in the morning.

THE British Columbia Medical Council has elected the following officers for the ensuing year:

President.—J. C. Davil, M.D.

Vice-President.—W. J. McGuigan, M.D., M. C. P. and S., Ont.

Registrar and Secretary.—G. C. Milne, M.D.

Treasurer.—E. B. C. Harrington, M.D.

Solicitor.—Mr. Walker.

THE sale of narcotic medicines at country grocery stores is dangerously prevalent. At Mineola, on Long Island, the grocer of the town, who knows nothing of pharmacy, sold to a customer a quantity of bromide of potassium, from which an overdose was taken by the patient and death was the result. An inquest was held and a verdict of censure was entered against the storekeeper for having, without license and in violation of the State law regulating the sale of poisons, sold the deadly dose.

DR. H. W. BOONE, a missionary to China, publishes in the *China Medical Missionary Journal* an account of his visit last year to this country and to its leading universities and hospitals. He notes, in terms of commendation, the changes that have come over the method of medical instruction since his own days of earlier study, specifying the growth of clinical teaching and of laboratory work. Of the profession he gives a bird's-eye view in a few words: "There is an earnestness among the higher grades of the profession which strikes one; they love their work for their work's sake, and they are fully imbued with the dignity of their profession. The successful ones are well paid and they live in the elaborate and expensive style of the world around them. They are of the world, and yet by their profession they are above it. Much excellent work is being done there; the leading schools are well up to the times, and the standard of medical and surgical work among the leaders of the medical world is a high one."

A GREAT variety of denominations and nationalities about New York find the means to establish institutions of healing in the name and interests of their respective classes. A French hospital is the latest to be projected. Two houses will be purchased, at a cost of \$55,000, and fitted up with a

capacity of fifty free beds and ten private rooms; a dispensary will be added later, if the necessities of the poorer element of the French colony appear to demand it.

At the meeting of the Board of Trustees of the New York Post-Graduate Medical School, held on Monday, May 28, 1888, the following appointments were made in the Faculty: Abraham Jacobi, M.D., Professor of Diseases of Children; Robert F. Weir, M.D., Professor of Clinical Surgery; Peter A. Callan, M.D., Professor of Diseases of the Eye; L. Bolton Bangs, M.D., Professor of Diseases of the Genito-Urinary Organs and of Venereal Diseases; Joseph E. Winters, M.D., Professor of Diseases of Children; O. B. Douglas, M.D., Professor of Diseases of the Nose and Throat.

Dr. William A. Hammond, being about to remove to Washington, has resigned his position as Professor of Mental and Nervous Diseases. Dr. Hammond was one of the founders of the School.

PROFESSOR WROBLENSKI, member of the Medical Faculty of the University at Krakau, died recently from blood-poisoning contracted during an experiment performed before his class.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, held at Cincinnati, May 8, 9, 10, and 11, 1888.

(Specially reported for THE MEDICAL NEWS.)

SECTIONS.

SURGERY.

(Concluded from page 589.)

THURSDAY, MAY 10TH.—MORNING SESSION.

DR. E. H. BRADFORD, of Boston, presented a paper on THE FORCIBLE AND IMMEDIATE REDUCTION OF OLD SUBLUXATIONS.

The essayist proposed a method of treating especially old subluxations of the knee-joint, as follows: The patient being anesthetized, the knee is forcibly flexed in order to break up the intra-articular adhesions. An apparatus devised by the essayist is then applied and pressure from behind forward by means of screw-force brought to bear upon the head of the tibia. The skin is abundantly padded, and the nerves and vessels are sufficiently protected by the muscle bellies of the region. After this is effected the limb should be held straight and secured against recontraction by a plaster-of-Paris bandage, applied high up in the thigh and including the whole leg and foot. The patella and joint should be well protected with cotton before the application of the plaster.

DR. P. S. CONNER, of Cincinnati, reported a case of

PRIMARY SARCOMA OF THE SCALP,

in which he had twice removed a sarcomatous growth from the scalp of Mrs. S., aged thirty-five years, white, native of eastern Kentucky. The primary growth had been noticed fifteen years before as a hard lump, the size of a bean, on the back part of the head. For thirteen years it remained of stationary size, then grew rapidly, until when excised, October, 23, 1885, it looked much like a second head, and weighed, after removal, about five pounds.

Eighteen months after the operation the patient noticed a small tender spot, and soon after a hard lump, which increased slowly for three months, then more rapidly. She was about a month advanced in pregnancy when the recurrence was observed. After her confinement, in January, 1888, the growth was excessively rapid, measuring, in March, antero-posteriorly, eighteen inches, laterally, seventeen and one-half inches. The mass was again removed and weighed seven and a half pounds. Five weeks after the operation, the patient left for her home, the granulating wound being in excellent condition.

The interesting points in the case, the speaker said, were the long absence of any change in the original nodule, the marked influence of pregnancy and lactation upon the growth of the tumor, both primarily and in recurrence, and lastly the immense size of the growth. A primary sarcoma of the scalp is of great rarity. No hard, indolent lump in the scalp should be permitted to remain, even though for years in an unchanging and unchanged condition. Probably benign and to continue such, it may not be so now or in the future.

DR. JOSEPH M. MATHEWS, of Louisville, presented
SOME OBSERVATIONS UPON TWO THOUSAND OPERATIONS
ON THE RECTUM,

in which he confined himself to the consideration of hemorrhoids, especially the internal variety. The causes, classification, dangers, and treatment were fully discussed. Referring to the classifications proposed for this class of diseases, the speaker stated that he thought the division into external and internal piles sufficient for practical purposes, as there was no ground for the making of distinction between the so-called venous, arterial, and capillary dilatations. He strenuously opposed the treatment by carbolic acid on account of its danger; quoting in this connection what is said by Dr. Andrews in his later work on *Diseases of the Rectum*. The clamp and cautery and excision were also considered. The speaker preferred the ligature to all other methods of treatment.

DR. H. H. GRANT next read a paper entitled

INTRA-PERITONEAL RUPTURE OF THE BLADDER.

Though among the rarer lesions for which abdominal section is appropriate, the still rarer comparative success after the operation lends an interest to the few recorded recoveries after laparotomy for its relief. He asked attention to the history of the operation, now about ten years old. It is a remarkable fact that though indefinite references to the propriety of attempting suture of the bladder after laparotomy for rupture have been made by Gross, Larry, Cussock and others, yet except the suggestions of Holmes in his *Principles and Practice of*

Surgery, in 1875, nothing like a definite operation is mentioned for it in any text-book on surgery published prior to 1880. Mr. Revington (Heath's *Surgical Dictionary*) declares that up to that time intra-peritoneal rupture of the bladder, however treated, had been uniformly fatal, excepting only Watters' case (*Med. and Surg. Rep.*, Feb. 1862) of laparotomy without suture.

This is, perhaps, the only laparotomy for the lesion under consideration until Mr. A. Willett, in 1876, closed by suture the bladder rent and abdominal wound (*St. Barthol. Hosp. Rep.*, 1876, xii.). Thus to Mr. Willett is due the credit both of the originality of the operation and the details of its performance. His operation was not, however, a success, as death occurred from peritonitis in twenty-three hours. In 1878, Mr. Christopher Heath (*Med.-Chirurg. Transact.*), forty-eight hours after accident closed by continuous catgut suture an intra-peritoneal rent; leakage and extravasation occurred and death on the sixth day.

In 1883, Pilcher (*Treatment of Wounds*, p. 370) commenting on these cases, describes with references to Vincent and Stein, the operation afterward successfully done by MacCormack in two cases in 1886, and now recognized with slight modification as the perfect technique.

He presented a table which he had formed in part from that of MacCormack, published in 1877, with fuller details supplied to some of his cases, published since his table and the addition of four cases operated upon since that time. He then reported a case upon which he had operated by this method, the steps of which were fully described, with the result a perfect success.

All observers, he said, are in accord as to the importance of an early operation, within eight to ten hours after the accident if possible. The symptoms are usually distinct and the diagnosis clear—great pain, severe shock, desire to urinate with futile attempts, perhaps a little bloody water by catheter. Yet the condition may be greatly obscured. Most authors refer to intra-peritoneal rupture of the bladder as a rare accident; but the essayist thought its appearing rare was due in a great measure to its being frequently overlooked.

AFTERNOON SESSION.

DISCUSSION ON ABDOMINAL SURGERY.

DR. P. S. CONNER, of Cincinnati, in opening the discussion, expressed regret for the absence of Dr. Hunter McGuire, to whom he had assigned the opening address. He felt sure that he voiced the sentiments of the Section when he expressed his high appreciation of the papers presented to the Section yesterday; papers which presented the results of experience and experiments, which give us positive rules in the treatment of cases of the most difficult character. And last of all there was presented the most beautiful demonstration that had ever been given to the profession of this country. Nothing could excel the labor and patience with which were worked out the experiments presented yesterday. Dr. Senn, literally absolutely, in every sense, threw light upon an exceedingly dark subject. No cases give us more anxiety, either in the detection of the difficulty or in the treatment of it than those of intestinal obstruction. If we were to believe all that we read and a good deal that we hear, we would suppose that it is an easy matter to determine the character of an intestinal

obstruction. The diagnosis has been very positively laid down, but, however clear the diagnosis may be in the books, it is very different with patients in bed. It is sometimes very easy to determine what the nature of the difficulty is; in other cases, notwithstanding the employment of the most accurate methods of investigation, it is very difficult to determine what the difficulty is or where that difficulty is located. In most cases it is easy to determine what is to be done when the diagnosis has been made, but, after all, it is the determination of the difficulty itself that gives us most trouble.

Leaving out of consideration the inquiry whether the case is one due to an intussusception, a constricting band, a twist of the intestine, the pressure of a tumor, etc., we have two kinds of cases to deal with: First, rapidly developed obstruction in patients of good health, and, second, slowly developed obstruction in patients whose health may be good or bad. We might add to this a third variety, namely, those cases in which the suddenly developed obstruction follows chronic trouble in the intestinal tract.

Letting the patient alone may and frequently will terminate in recovery, but it will frequently result in the death of the patient. When recovery follows the let-alone plan of treatment, we congratulate ourselves upon the successful issue of the case. Who of us, on the other hand, has not seen active interference made in these cases where it terminated fatally?

To discuss this question to-day is a very different thing from discussing it ten years ago. Abdominal surgery has made rapid progress; some of it, he was about to say, too rapid and apt to lead in the wrong direction. Active interference is the only rule in the treatment of intestinal obstructions to-day. The proper discovery of the seat of the lesion, the removal of the difficulty and putting the patient in a proper way for recovery are the ends we seek. A world of truth was expressed yesterday by Dr. Moore when he took exception to the remark that the abdomen might be opened with impunity. It is not a little thing to open the abdomen. That laparotomies have killed patients we know too well. Failure of success is often due more to the condition of the patient than to the character of the difficulty.

DR. S. H. WEEKS, of Portland, Maine, expressed his high appreciation of the great value of the papers that had been read. He desired to emphasize the fact that the discussion was limited to the treatment of intestinal obstruction in its *surgical aspects*. It is not every case that is to be treated by surgical measures; many cases are to be treated by medicinal means. He then narrated a case which simulated the passage of biliary calculi, and was so diagnosed before laparotomy was much in vogue; but the autopsy, four days later, revealed an obstruction which could have easily been relieved by surgical means. He spoke also of a case presenting almost the same symptoms in which the obstruction, high up, was occasioned by the binding down of the omentum after it had wound itself around a loop of the intestine; and of a third case in which he operated upon a man almost moribund, found the obstruction, removed it and gave almost instant relief. The operation, he remarked, should not be too delayed, until the intestine becomes gangrenous.

In conclusion, he remarked that the modern surgeon should no more permit his patient to die unoperated upon

with an internal strangulation than he would permit him to die of an external strangulated hernia. Sudden stoppage, great pain, great prostration, feeble pulse, anxious expression, restlessness, nausea, vomiting—these symptoms speedily becoming pronounced, are those upon which we rest our diagnosis of an acute obstruction. And when the surgeon feels that he is in the presence of an acute obstruction, a great responsibility rests upon him, and he makes a great mistake if he fails to perform his duty.

DR. D. S. CAMPBELL, of Detroit, read a paper on

ELECTROLYSIS AS A PRIME AGENT IN THE REMOVAL OF NASAL AND PHARYNGEAL NEOPLASMS.

The therapeutic value of the galvanic current in urethral hypertrophic catarrh, fibromata, and mucoid growths of the uterus, etc., owes its demonstration chiefly to Apostoli, of Paris. The essayist had come to the conclusion, after careful manipulation of this particular kind of chemical force in a large number of cases suffering principally from nasal and pharyngeal neoplasms, that its therapeutic value is worthy of consideration. He dwelt, for the most part, upon the nature of the galvanic current and its effect upon living tissues, from which he passed to the illustration of the results which follow its systematic application in a case of fibroid tumor. His experience led him to the conclusion that the strength and frequency of application, as well as the strength of current employed, must correspond to the peculiarities of individual growths. No rules can be advanced.

DR. H. LANDIS GETZ, of Iowa, next described and exhibited

AN ANTISEPTIC SURGICAL CABINET.

The cabinet was devised for the purpose of enabling the surgeon and gynecologist to avoid the application of chemical agents to fresh wounds in order to render them aseptic, especially in major operations. The cabinet consists of a gauze-covered framework about six feet in all dimensions. In constructing it, the frame is first put together in a position to surround a window. Just before the cloth is suspended over the frame, it is dipped in a solution of mercuric bichloride, 1:500 or 1:1000, thus, as the essayist claimed, being rendered impervious to microorganisms. The floor was covered with the same aseptic cloth. A special arrangement was added for the introduction of fresh air from without. The advantages claimed for it by the inventor are briefly: It purifies the air by a process innocuous to the wound surface; it is easily and quickly constructed; cheap, simple, efficient; it admits circulation of air without currents; strong germicides may be used without danger to the patient; and many other features of greater or less supposed value.

DR. W. VAN HOOK, of Chicago, called attention to the method employed by Dr. David Prince, of Illinois, for rendering the air in the operating-room aseptic, and stated that it has proved successful in the room used by its originator. He did not believe, however, that a perfectly aseptic room could ever be devised, for the reason that every operator carries enough germs in his mouth and nostrils "to poison the entire mass of humanity." Owing to the agglutinating properties of the mucus lining the air passages, however, these germs are not expired with the expired air, which has been found to be comparatively aseptic.

DR. T. D. DAVIS, of Pittsburg, then read a paper on
GRADUAL DILATATION OF OESOPHAGEAL STRICTURES.

He stated in introduction that he referred only to cicatricial strictures of the oesophagus. These are produced by any cause that will destroy its coats. When either its mucous or submucous coat is destroyed, the resulting cicatrix is composed of smooth, hard, imperfectly organized tissue that projects in ridges, or causes the adjacent mucous membrane to be puckered up in folds. If the continuity of the deeper tissues be destroyed and the muscular coat is destroyed, the resulting cicatrix is very firm and callous, and the passage much contracted. Secondary hypertrophy of the mucous membrane may follow. The various causes which may produce cicatrices of the oesophagus were next reviewed, chief among which was the drinking of concentrated lye. The number of individuals, for the most part children, who are annually victims of this dreadful accident, the speaker said, is appalling, and far beyond the published reports. The speaker thus described the first case in which he had practised gradual dilatation:

In April, 1880, Henry C., aged four years, had been playing in the yard and came crying into the house with his mouth bleeding. . . . From information received afterward, I have no doubt that he swallowed a solution of concentrated lye from an old empty can that had been carelessly thrown in the yard. . . . In five weeks I was called to see him again, when I was informed that he was having repeated attacks of vomiting. He had lost considerable flesh and his face presented the haggard, anxious look of craving hunger. An oesophageal stricture was at once diagnosed, and with the assistance of Dr. W. R. Hamilton, a No. 2 flexible catheter was with great difficulty passed through to the stomach. The difficulty was caused first by the great dilatation of the oesophagus that had taken place above the stricture, making it extremely hard to find the natural passage and avoid making a false opening through the attenuated walls; and, secondly, by the size of the stricture itself which grasped firmly the small catheter. . . . Immediately after the passage of the catheter, the child was able to swallow a few spoonfuls of milk, but in a few hours the tenacious mucus would again accumulate and occlude the passage. In a short time the child realized the relief afforded him by the dilatation and waited rather anxiously for the operation, often bringing me the tube to insert. In order not to hurt him, to retain his co-operation, I increased the size of the tubes very slowly, and thus stumbled upon a very satisfactory plan of treatment—that of very gradual dilatation.

After six weeks of this careful dilatation, the speaker entrusted the operation to the parents, and in five months the oesophagus had obtained a size equal, as he believed, to that of the normal passage in a child of that age, admitting of the passage of No. 2 rectal bougie.

In conclusion, the following propositions were advanced:

1. Too much weight has been given to spasmodic stricture of the oesophagus by Michel, Campbell, Smith, and others. That involuntary muscles can even have tonic spasms at all is a question, but to hold with Campbell that such a spasm can continue for eight days calls for a stretch of the imagination beyond my power. At no time did I have any evidence of spasmodic stricture

in these cases. Any difficulty in introducing the dilators was due solely to causes mentioned. The relief given by passing the bougie is readily explained, not by its overcoming spasm, but by its removing the tenacious mucus, or some article of food that had clogged the passage or lodged on the shelf of the stricture.

2. The advantage of the early introduction of the bougie to prevent dilatation of the oesophagus above the stricture is clearly manifested by the history of these cases.

3. The second case certainly contrasts the rapid and gradual plans of treatment to the great advantage of the latter. To "make haste slowly" is the only safe rule. The gradual method being almost painless and giving great relief, secures the coöperation of the patient. It avoids, too, great irritation and danger of inflammation and rupture, all of which are likely to follow rapid dilatation.

4. Is not the occurrence of seventeen accidents in Pittsburg alone enough to second Dr. Campbell's proposition that some legal restriction should be placed on the sale of this intensely dangerous substance?

FRIDAY, MAY 11TH.—MORNING SESSION.

DR. WELLER VAN HOOK, of Chicago, read an abstract of his paper on

SACRO-ILIAC TUBERCULOSIS.

The clinical characteristics of tuberculosis at the sacro-iliac joint partake of all the general characteristics of tuberculosis of other joints. The sense of deep boggi-ness over the joint indicating chronic inflammatory involvement of the deep structures, and cedema of the soft parts above are present here as well as in morbus coxarius. The loss of function, the pain on pressing the bones together, the tenderness over the joint cavity, the change in attitude, the tumefaction and finally, the sense of fluctuation yielded by fluid exudates are common here as in tuberculosis of the knee or ankle. In older cases in which cold abscesses have formed and have opened outward, we find fistulæ running in a great variety of directions from the starting-point in the joint itself.

Notwithstanding the study which has been bestowed upon these joint affections, we are compelled to limit our deductions, after locating the disease, to a determination of its tendencies from a single symptom—viz., the presence or absence of cold abscesses; for other symptoms are of comparatively little prognostic value. Of thirty-eight cases of sacro-iliac tuberculosis with abscess, collected by the essayist, only one, that of Hilton, recovered without operative interference of some sort.

On the other hand, with the observance of hygienic laws, with the application of complete mechanical rest, fifteen out of a total of sixteen collected cases without abscess went on to complete recovery, the only death being due to an older suppurating tuberculosis of the knee-joint. But though the cases without abscess tend to recovery, we have numerous examples to prove that cases originally devoid of abscesses can proceed, chiefly under imperfect treatment, to local extension, abscess formation, and eventually death.

The moist form without mixed infection may end in recovery, as doubtless did Hilton's case, by resorption of fluid matter and capsulation of the detritus. Instead of

the fluid being resorbed, it may be discharged externally, the original focus being enclosed as before in a scar.

Death occurs in the moist form from sapraemia or septicemia due to mixed infection; from simultaneous or intercurrent local tuberculosis elsewhere, as in the intestine, peritoneum, and lungs; or from general miliary tuberculosis.

Previous to the period when radical operations came into vogue for the treatment of tubercular arthritis, the treatment of sacro-iliac tuberculosis was on a par with that of other joints. Erichsen, in his celebrated clinical lecture of 1859, describes the treatment as properly including, besides internal remedies, rest with counter-irritation during the period prior to abscess formation, and opening of abscesses by valvular incisions when they are large and chronic. He regarded operative interference as out of the question. The essayist here stated that Dr. L. A. Sayre, of New York, had reported to him a case, not published, in which he had in 1853 opened the joint of a child posteriorly and gouged out carious bone with recovery.

It is only within the last five years that operators have begun to consider seriously the question of radical treatment of the disease, operations having been performed by Tiling, of St. Petersburg, in 1883, and two in 1887 by Gant, of England.

He recommended two operative procedures, according to the extra- or intra-pelvic location of the abscess. The method of reaching the lesion when the abscess is extra-pelvic is that practised in the cases operated upon by Sayre, Tiling, and Gant—namely, by simple incision over the joint, and curetting with the usual instruments. When only intra-pelvic abscesses have formed, and we have reason to believe that the disease process lies chiefly in the anterior part of the joint, we must have resort to the second procedure, by which, if possible, the posterior and sound part of the joint need not be disturbed. It must be remembered that the articular surfaces of the sacrum and ilium are directed antero-posteriorly—that is, almost perpendicularly to the flat surface of the skin overlying the sacrum. Hence the broad expansion of the joint surfaces lies at a depth in the adult of two and a half to three inches from the surface. This surface may be reached thus: The patient lying on the unaffected side with the thighs in exaggerated flexion, a longitudinal incision exposes the posterior superior spinous process of the ilium from which the periosteum and tendinous attachments of muscles are removed by dull instruments. With a pretty large chisel a piece of bone is now cut away from the iliac spine so as to allow the passage of the finger into the pelvis, the interosseous ligaments having been divided by a knife. The anterior and larger part of the articulation is thus exposed to the touch of the surgeon, who, with the aid of a Volkmann's spoon with a long curved handle, can easily reach tubercular matter both in the bones and in the soft parts. An operation done by the speaker under the direction of Dr. Christian Fenger was narrated in illustration.

In conclusion the following points in treatment were proposed for further consideration:

1. Hygienic and symptomatic treatment, with counter-irritation by means of the thermo-cautery where pain exists or where improvement is slow, should be combined with complete mechanical rest aided by extension in all cases where abscesses have not formed.

2. Cases exhibiting abscesses should invariably be subjected at the earliest practicable moment to a thorough radical operation by curetting performed posteriorly—that is, directly—when the abscess is extra-pelvic in origin; performed as just described, anteriorly, whenever the abscess originates within the pelvis.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 11, 1888.

SECTION ON NEUROLOGY.

W. R. BIRDSALL, M.D., CHAIRMAN.

DR. W. H. THOMSON read a paper on

DIPHTHERITIC PARALYSIS,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. A. JACOBI referred to the course and kinds of diphtheritic paralysis. There are undoubted cases of central origin on record, he said, and a few cases of ataxia had been observed. He believed that Dr. Thomson was correct in assuming that the paralysis is not to be taken as sequela of diphtheria, but rather as really part and parcel of the disease. If there is any disease which runs an indefinite course it certainly is diphtheria; this course sometimes being extended for many months. One difference between this and the other contagious diseases is, that once having had it, the subject is all the more liable to subsequent attacks. In many instances, he believed, those repeated attacks simply show a continuation of the disease, which is hidden away in the tonsils or lymph bodies, and liable at any time to fresh outbreaks.

As a rule, the paralysis first appears in the fauces, affecting deglutition, and then successively in the muscles of ocular accommodation and in the extremities. Finally, there may be respiratory paralysis, which often proves fatal. This order cannot be relied upon in every instance, however, and, in making a diagnosis in cases where there have been no throat symptoms, one of the main points to be depended upon is the fact that in diphtheritic paralysis only a comparatively small number of muscles is usually affected at the same time. Another point is the fact that the sphincter muscles are so rarely affected that this can be said to be almost never the case.

He then went on to say that paralysis not infrequently comes on during the acute stage of diphtheria. In heart-failure, which is so common an occurrence in this disease, there is no doubt a failure of the heart nerves, either the sympathetic or the pneumogastric. This is an accident liable to occur in any case of diphtheria, and he had therefore always insisted on the free administration of alcoholic stimulants and cardiac tonics from the very first. After symptoms of heart-trouble have once appeared it is usually too late for such remedies to do any good. Respiratory paralysis is about as fatal as heart failure. Hence the most energetic measures are called for to combat it, and strychnia and electricity should be pushed to the utmost extent possible.

DR. ANDREW H. SMITH said that it seemed to him very remarkable that we should so frequently have recovery from diphtheritic paralysis when the anatomical lesions were as marked as they were. The paralysis

had always also been somewhat of a stumbling-block to him in trying to accept the hypothesis that diphtheria is originally a merely local disease. He had no doubt that there were cases of diphtheria in which no membrane ever appeared, and the fact that instances are on record in which diphtheritic paralysis occurred without any previous throat symptoms, certainly goes to sustain the idea that diphtheria is essentially a general disease; while the membrane is only an indication of it, just as the erythema of scarlatina is the outward manifestation of that disease. In scarlatina and the other exanthemata the eruption does not constitute the disease. Dr. Smith then referred to the case of a child whose mother had diphtheria in which the diphtheritic membrane appeared, not in the throat, but in the groin, where the skin was chafed. It is also remarkable, he went on to say, that in cases of diphtheritic paralysis not preceded by the appearance of membranes in the throat, the paresis usually begins in the fauces. This would seem to indicate a peculiar predilection of diphtheria for this region, aside from the simple deposit of membrane there.

DR. L. PUTZEL said that he did not understand exactly what Dr. Thomson meant by the post-latent stage of diphtheria. This disease is different from scarlatina because in scarlatinal nephritis the bacterium which is the exciting cause of the acute affection still remains in the system. It seemed to him more probable that the acute attack of diphtheria leaves the nervous system in a weak condition, in which any slight cause may bring on paralysis. As regards the fact that the paralysis usually makes its first appearance in the fauces, the reason for this seemed to be because the throat is so much affected in the acute attack. As to those rare cases in which paralysis occurred without any previous local trouble, he was not aware that a sufficient number of them had been observed to base any conclusion upon.

DR. MALCOLM McLEAN described a very severe and prolonged attack of diphtheritic paralysis occurring in his own person a few years ago, in which, he said, more muscles and a greater extent of cutaneous surface were affected than is usual in cases which recover. It lasted for four and a half months, and involved the muscles of respiration as well as those of the throat and of both the upper and lower extremities, but did not affect the sphincters. With the paralysis there was marked hyperæsthesia. On the fourth day of the acute attack of diphtheria, which preceded the paralysis, symptoms of heart failure appeared, and the heart continued weak throughout the course of the subsequent paralysis. On one occasion the pulse fell to 32 (afterward suddenly rising for a time to 160), and this was accompanied by a most violent attack of angina pectoris, which nearly proved fatal. The ordinary rate of the pulse was 52. The practical point which Dr. McLean said he wished to impress was the necessity in such cases of the most absolute rest. In his own case he was treated for a long time with faradization and galvanism, and in order to receive the treatment was taken in a carriage to the office of the gentleman who applied them. Although they were employed with the greatest skill, he only grew worse instead of better; with the exception that the original paralysis of the fauces was markedly relieved. At length so great was the pain and discomfort which he suffered that he determined to take absolute rest in bed; and as soon as he adopted this course

he began to improve. He remained in bed for a month, and the result was so satisfactory that he was firmly convinced that in these severe cases unless this absolute rest is insisted on, no other treatment will be of any avail.

DR. S. SEABURY JONES mentioned a case of tabes dorsalis which occurred in a druggist who had received a wound in the hand while assisting at a tracheotomy performed on a diphtheritic patient, the paralysis commencing in the wounded hand. In such cases, according to Trousseau, the paralysis sometimes attacks the throat first. He then referred to the case of a mother whose child had diphtheria, but who did not have any membranes, as far as could be ascertained, although she complained of her throat. The woman consulted him for difficulty in swallowing, with numbness of the tongue and impairment of the sense of taste. The case resembled one of bulbar paralysis, but the patient made a good recovery under the use of iron and strychnia. In diphtheritic paralysis he believed the lesion might be either central or peripheral; but Trousseau in his classical work had brought out so beautifully all the points in connection with the subject that little or nothing remained to be said upon it.

DR. BIRDSALL said that as regards the pathology of diphtheritic paralysis, he also believed that while in many instances there was simply a neuritis, cases of undoubted central origin sometimes occurred. In the latter, however, the central lesion was apt to give rise also to peripheral degeneration. In adults diphtheritic paralysis is relatively more frequent than in children, and it very often occurs in cases in which the original attack of diphtheria is very slight. As to the matter of heart failure, it is a question whether the trouble is of the same nature as the paralysis noted after the acute attack, or whether it is merely functional in character. A point against its paralytic origin is the early stage at which it occurred. As to the etiology of diphtheritic paralysis it seemed to him entirely possible that it might be due to the original poison causing the disease; the delay in its appearance being perhaps attributable to the comparatively long time which it takes for such toxic agents to act upon the nervous system.

DR. THOMSON said that he had purposely refrained from taking up the subject of heart failure in the paper, since it presented so many complications. He doubted very much, however, whether it was due to the mere cause as the later paralysis. In many cases he believed there was myocarditis, and it seemed probable that this was the fact in Dr. McLean's case. He had not touched upon the topic of therapeutics in the paper, but he quite agreed with Dr. McLean that electricity is of no service. It is highly desirable to stimulate the peripheral extremities of the nerves, and this can be best accomplished by applying to the throat equal parts of honey and red or black pepper. In paralysis of the extremities a solution of pepper (a drachm to the pint) is also a useful local application. As to Dr. Putzel's reference to the post-latent period of diphtheria Dr. Thomson said that the paralysis is an indication of processes going on subsequently to the acute stage, and this post-latent stage he believed to be a general characteristic of all the acute fevers. The post-latent stage varies in its manifestations in the different diseases, and it seems probable that its phenomena are due to the presence of ptomaines in the system.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 4, 1888.

THE PRESIDENT, JAMES PERRIGO, M.D., IN THE CHAIR.

DR. RICHARD MACDONNELL exhibited a heart with a

PATENT FORAMEN OVALE.

He said that, during the practical anatomy course of last session at McGill University, a heart was found in which the foramen ovale was patent. The body was that of a woman aged twenty-five, who had died in the Montreal General Hospital, of phthisis, with empyema. Dr. MacDonnell saw her first in 1883, when she came to the out-patient department with primary syphilis. She was very thin and very delicate, but there was no evidence whatever of any vascular derangement. Her mental faculties were defective. During that year she was a constant attendant at the clinic, presenting well-marked symptoms of secondary disease in many of its forms, notably alopecia, sore throat, and iritis. In 1884 and 1885 she was admitted into the wards on several occasions and her chest was examined frequently, but no evidence of cardiac disease was ever made out. The last admission was upon May 8th, when distinct evidences of phthisis were apparent. She died on the 7th of June, 1887, with extensive softening of the right lung, with thickened pleura containing pus. Dr. MacDonnell thus had the case under observation for four years without ever having perceived any cardiac symptom or physical sign. The opening in the fossa ovalis was of large size.

DR. BELL presented a specimen of

EXOSTOSIS BURSA,TA,

which he had removed from the inner side of the lower end of the right femur of a boy aged twenty. The bony growth was about the size of an orange and appeared to spring from the condyle below the epiphyseal line. It had a bony pedicle three-quarters of an inch long and half an inch in diameter, and grew upward and inward. Its surface was covered with cartilage in small isolated nodules, which were closely placed and formed a continuous layer over its surface. The whole was inclosed in a perfectly formed synovial membrane, which was continuous with the periosteum of the pedicle. This sac contained half an ounce of clear amber-colored synovial fluid in which loosely floated fifty-four cartilaginous bodies, looking exactly like the floating cartilages found in the knee-joint. These varied in size from a bean to a small pea.

The tumor was first noticed nine years ago as a small, soft and "movable" growth about as large as a marble. It grew steadily, and only four years ago became fixed and felt hard. There never was pain in connection with it, but the patient complained of its inconvenience, and the fatigue of the muscles in walking up-stairs.

Dr. Bell stated that the only record of any similar cases he had been able to find, was in a paper read by Dr. Fehleisen at the Fourteenth Congress of German Surgeons, held at Berlin in 1885. Fehleisen reports a case which had recently occurred in Prof. Bergmann's clinic, and refers to another which had been seen in Billroth's clinic in 1863. These he believed to be the only ones on record at that time (April, 1885). Dr. Bell said these two cases corresponded exactly with the

one now related by himself. In Bergmann's case the synovial membrane contained about 500 loose cartilaginous bodies, and in Billroth's case 35 were found. Billroth's case was carefully investigated by Rindfleisch, who came to the conclusion that it had originated, not as an ordinary exostosis from the epiphyseal cartilage, but as an enchondrosis of the cartilage of the joint which had pushed out a portion of the synovial membrane; this in time had become cut off from the joint cavity and had formed a separate sac over the tumor. Fehleisen, however, attributes these growths to a developmental error by which a group of cells, separate from the joint and lying dormant, suddenly springs into action and produces this special form of exostosis. He also points out that, although the ordinary exostosis which frequently grows from the epiphyseal cartilage at the ends of long bones, is often covered or partially inclosed in a *bursa mucosa*, these free cartilaginous bodies never occur in them. Moreover, he ascribes the origin of the free-floating cartilages to tufts of the synovial membrane, in which are formed minute islands of hyaline cartilage. These develop and are set free in the cavity of the synovial sac, both in large joints and in cases of *exostosis bursata*.

DR. FENWICK said that this case was a unique one as far as his experience went. He had in his possession a large exostosis of the lower end of the femur, which on section was found to be composed of cancellated structure. This had been obtained from the dissecting-room, and he was unable to say whether or not there was a bursa in connection with it, but it had been no doubt covered with cartilage.

DR. SHEPHERD said the case was a most interesting one from the light it threw on the formation of these floating cartilages in joints. He was convinced that the little buds of cartilaginous substance growing from the inside of the synovial membranes were the origin of the free cartilaginous bodies. They, no doubt, grew until they fell off from their own weight.

This form of exostosis he had never seen before; the ordinary exostosis is comparatively common and grows from the epiphyseal cartilage. They stop growing with the maturity of the individual. He had seen two well-marked cases within the last few weeks, one in a boy of sixteen which had reached a considerable size, and was continually growing. Billroth, in his *Clinical Surgery*, mentions a case of exostosis bursata olecrani.

DR. RODDICK exhibited a stone weighing fifteen drachms which he had removed from a man, aged fifty-two, by the

SUPRAPUBIC CYSTOTOMY.

Twelve years before he had removed a stone from the same man by the lateral operation. He remained well up to eighteen months ago, when symptoms of stone reappeared. He preferred the suprapubic operation on this occasion, because of the large size of the stone, and because he had formerly performed the lateral operation. He did not suture the bladder.

DR. FENWICK saw no reason why a previous lateral operation should contraindicate a second one, he had several times operated a second time with success; on one patient he had performed lateral lithotomy four times. He thought that entering the bladder by the perineum is the most natural way, and there is no danger of infiltration of urine as in the suprapubic. He had re-

moved very large stones by the lateral method by cutting both sides of the prostate.

DR. SHEPHERD said that in cases of suprapubic lithotomy he preferred suturing the bladder and putting a drain in the abdominal wound, so that if the bladder wound did not unite by first intention, there would be an outlet for the urine. The bladder should be drained by a catheter in the urethra.

DR. BELL said the bladder could not be drained thoroughly through the penis, and advocated a perineal drain.

DR. RODDICK, in reply, said that the chief reason he had made use of the high operation, was the large size of the stone. With regard to suturing the bladder, most disastrous results had been reported by Thompson. He did not care to run the risk of urinary infiltration, a catheter introduced into the bladder through the penis would not effectually drain that viscus.

DR. SHEPHERD reported a case of

EXCISION OF THE RIGHT HALF OF THE LOWER JAW,
WITH LIGATION OF THE INTERNAL JUGULAR VEIN,

for epithelioma which had recurred after removal from the lower lip eighteen months before. The patient was a man, aged fifty, and in good general health. There was some enlargement of the cervical glands. The jaw was removed without much difficulty and with little hemorrhage, but in dissecting out the infiltrated glands in the neck which were behind the vessels, the jugular vein was torn and had to be ligated. The patient made a good recovery, the temperature never rising above 100°. Dr. Shepherd mentioned that this was the fourth time he had tied the internal jugular vein in the course of operations on the neck, and that he had never seen any bad results follow.

DR. RUTTAN read a paper on a case of

POISONING BY BICHROMATE OF POTASSIUM.

The paper was based on a case of suicide by this salt.

An Englishman, aged twenty-five, took about two ounces of bichromate of potassium in crystals, and was found in an outhouse vomiting, purging, and in great pain. When seen by the ambulance surgeon the vomiting had ceased. The patient was speechless and writhing on the floor, face contorted, and of a decidedly dusky hue, surface of the body cold, hands shrivelled and blue, respirations very rapid, mouth stained and filled with yellow fatty mucus. Vomited matter contained crystals of bichromate of potassium, but no blood. Abdomen retracted, and tender. At the hospital the patient was given a hypodermic injection of ether, as the pulse was absent at the wrist. An attempt was made to introduce a stomach pump, but the patient died a few minutes after removal and within an hour of taking the fatal dose. When seen an hour after death, cyanosis was marked over face and neck, pupils were dilated.

The autopsy was made forty-eight hours after death by Dr. Lafleur. He reported cyanosis marked. Veins of pia mater were found distended and filled with dark chocolate-colored blood and without clot. Brain substance normal. The liver was of an intense purple hue and hyperemic. Small intestine contained olive-green mucus with shreddy pieces of a yellow color. Mucous membrane slightly inflamed, but no loss of substance. Large intestine firmly contracted and contained

but little mucus, stomach filled with mucus of a greenish-yellow color. No signs of severe corrosive action. Lungs crepitant, dark brown, and very frothy on section. Heart contained three ounces of dark chocolate-colored blood without clot. Muscles very red; seventy-two hours after death rigor mortis still very marked.

The blood was found to contain everywhere the neutral chromates of sodium and potassium; of the organs, the liver contained most of the poison, but it could be also detected in the tissues. The substance of the liver and kidneys could be stained a deep chrome yellow on suspending them in dilute acetate of lead for a few minutes. The stomach and small intestine contained, precipitated in the epithelium and in the mucus the insoluble green oxide of chromium. The blood was neutral. On spectroscopic examination it gave the absorption spectrum of methæmoglobin. (The absorption spectrum produced by the blood was shown to the Society.) Dr. Ruttan remarked on the rarity of these cases, and after comparing the symptoms and post-mortem appearances of this case with those recorded by others, concluded with some observations on the physiological actions of bichromates. As the result of a study of the recorded cases, and from a number of experiments made on rabbits and other animals by himself and Dr. Lafleur, he drew certain conclusions which are summarized as follows:

(a) The blood alterations resulting in the production of methæmoglobin, though hitherto unnoticed in these cases, occur whenever the dose is large or the poison rapidly absorbed.

(b) That neutral chromates do not produce methæmoglobin in the blood of living animals or in solutions of hæmoglobin. This action is peculiar to bichromates.

(c) Bichromates owe their rapid toxic action to this property which they have in common with several other powerful oxidizing agents.

(d) Bichromate of potassium may, like pyrogallol acid, potassium chlorate, nitrites, etc., produce death without causing any symptoms of corrosive irritant action by profuse blood alteration alone. Cases were cited, notably one reported by Dr. Wilson, of Glasgow (*Medical Gazette*, vol. 33), and experiments quoted in proof of the similarity of action of bichromate to the methæmoglobin producers.

(e) If bichromate does not kill within a very few hours the symptoms and post-mortem appearances are indistinguishable from those produced by neutral chromates; hence the comparison of the physiological action of these two salts by writers on poisons. Usually, however, as in the case which formed the text of the paper, the salt acts both as a violent irritant and a methæmoglobin producer. In concluding his paper, the reader called attention to the dangerous ease with which this poison can be procured. The salt is used in many of the toy batteries sold to children and is never labelled poison.

DR. STUARD asked if Dr. Ruttan thought the ordinary symptoms produced by the nitrites are due to the production of methæmoglobin; if not, what are the symptoms produced by methæmoglobin?

DR. REED mentioned a case reported in the *London Lancet*, of a man who took four drachms of bichromate of potassium and died in fifty-five minutes. Cases of recovery have been reported after taking ten to fifteen grains. Symptoms were vomiting, pain and hemorrhage.

CORRESPONDENCE.

PROFESSIONAL PATRIOTISM.

To the Editor of THE MEDICAL NEWS,

SIR: Having just read in THE NEWS a note from an officer of the army to *The Evening Post*, in which he asks permission "to place a flower on the grave of Dr. C. R. Agnew," who, in reply to him asking for his bill for professional services, said, "Captain, what I have done for you is only an expression of what I feel is due to every man who wears your uniform. You do not owe me anything,"—I beg leave to place a flower on the grave of another New York physician—the late Dr. Austin Flint—who, on the occasion of a professional visit to General Alvord, in Washington, in his last illness, in reply to him asking for his bill and urging the Doctor to accept a roll of greenbacks and adding, "You have been most kind and have done me good; you have been pleased to come to comfort me," replied tenderly, and I thought with some emotion, "General, I do not forget what you have done for us."

There are noble sentiments existing in the Faculty all around the world, but from the lips of professional men as eminent as Agnew and Flint, are more likely to attract the attention of the readers of your journal.

The writer recalls the words of the late Professor Gross who, in reply to one of his cloth asking for his bill, said with emphasis and a broad smile, "Dog don't eat dog," Doctor."

BASIL NORRIS, M.D.

VANCOUVER BARRACKS, W. T., May 16, 1888

THE DANGER OF WASHING OUT THE PLEURAL CAVITY.

To the Editor of THE MEDICAL NEWS,

SIR: Permit me to thank you heartily for your remarks (THE MEDICAL NEWS, May 5, 1888, page 496) on "Epilepsie Pleurétique," a new disease, caused by the absurd custom of injecting disinfectants into the pleural cavity in all cases. I never injected but in one case, and in that I did so because the patient seemed to be running down, and I feared phthisis would supervene. I was convinced that a quantity of pus (*thickened*) was lying on the pleural cavity below the external opening, thus causing disease of the system generally. Accordingly, after I had allowed all the pus to drain away that could be made to come, I injected simple warm water, about a pint, and I was surprised and at the same time gratified to find that my diagnosis was thus confirmed. It came back *looking like pus*. I continued injecting about a pint several times, *most gently*, until the water returned almost as pure as it entered. I then desisted. The patient immediately began to improve and went steadily onward to a final cure.

This was a case evidently calling for an injection, but the custom of "washing out the pleural cavity" with simple water or antiseptic solutions in *all cases is a custom full of danger*. I am not surprised that the new disease of "Epilepsie Pleurétique" has been generated. To keep the external opening perfectly clean and let nature do her own work, has been my rule and successfully so far.

The profession of late has had one of its periodical frantic delusions. We now have one in regard to the use of "antiseptic injections" almost everywhere and at

all operations. The consequence is that healthy women have been seriously injured and perhaps killed at times after healthy labors by injections into the womb, and all by the *folly of the profession*. We are likely to have more deaths and various diseases as the result of injections, unless we stop this course. Let us all follow your excellent advice, viz., emphasize the rule that *such injections* (pleural in this instance) "*should not be practised at all*," unless where actual gangrenous odor is found, or the patient, as in the case cited, is apparently running down from the retention of foul matter. I fully believe in your closing remark, viz., "to this rule there will be found few if any exceptions."

My experience since commencing the use of thoracentesis and thoracotomy is that once in 250 cases and 399 operations I have felt impelled to inject. I have never had a serious result to follow in any case. I do not think I should be able to say as much had I been an *intermeddler with injections in all cases* to kill the germs of disease *falsely* supposed to be ready to kill the patient unless strangled by our brave remedies.

Excuse this long letter, but I wanted to thank you for the editorial, and, as the mechanics say, "clinch your strong nail," so far as I could do so, by my experience.

Respectfully yours,

HENRY B. BOWDITCH, M.D.

BOSTON, May 23, 1888.

NEWS ITEMS.

A Medical Congress in Spain.—The *Independencia Medica* states that a Medical Congress will be held at Barcelona from the 9th to the 15th of September, in connection with the Universal Exhibition which is shortly to be opened there. Among the subjects down for discussion we observe the following, which will suffice to show that our Spanish brethren are well abreast of the medicine and surgery of the day: Measures to be taken by the State for the prevention and cure of blindness, and for the improvement of the condition of the blind in Spain; present state of leprosy in Spain, and how to prevent it from spreading; indications for surgical interference in intestinal obstruction; identity or difference of scrofula and tubercle; localization of lesions in diseases of nervous centres; application of hypnotism and "suggestion" to the treatment of nervous affections; micro-organisms in mineral waters, their influence on the chemical constitution and therapeutic effects thereof; laparotomy as an exploratory measure in penetrating wounds of the abdomen (more especially gunshot wounds); antiseptic midwifery; etiology and prophylaxis of cholera and yellow fever. A Pharmaceutical Congress will meet at the same time.—*British Medical Journal*, April 28, 1888.

A Universal Dictionary of Climatology.—The Imperial Observatory of Rio de Janeiro plans the publication of a universal dictionary of climatology. For this purpose, the director, Mr. L. Cruls, has prepared and sent out a circular soliciting information from all official and private sources as to the climatic elements of places at which observations have been or are being carried on. A table is attached to the circular, in which the results of observations are to be inserted. The mean temperatures of the months of the year, the mean maxima and minima,

humidity, days and amount of precipitation, cloudiness, frequency of gales, days of frost, prevailing winds, the absolute maxima and minima, the mean annual barometric pressure, and the mean annual oscillation of the latter, are the points on which information is solicited.—*Science*, April 6, 1888.

An Epidemic of Milk Typhoid.—Dr. Brown, Health Officer of Carlisle, reports in the *Practitioner* for May, 1888, an epidemic of between thirty and forty cases of typhoid fever, of varying severity, in which the source of contagion was traced to milk. The cows which furnished the infectious fluid were suffering from a disease resembling typhoid in the human subject.

The Extirpation of Rabbits in Australia.—A telegram from Sydney states that the conference upon the means of dealing with the rabbit pest has resulted in the selection of an island where M. Pasteur's and other methods of extirpation will be thoroughly tried. The liability of other animals and birds to infection by the same means will also be tested.

Wood-wool Sheets for Accouchement.—These recently devised sheets are composed of a thick layer of wood-wool, inclosed in a gauze cover. They absorb discharges readily, deodorize all offensive matter, and are far more comfortable than rubber sheets. They are made at present in London.

Simple Tests for Poisonous Candies.—The *American Analyst* of March 15, 1888, writes that to test candy with respect to poisonous colors one needs a few ounces of alcohol, about an ounce of bleaching powder in solution (hypochloride of calcium), a little white woollen yarn, and a small bottle of aqua ammonia. See first whether the color can be dissolved out by alcohol; if it can, immerse the woollen yarn in the solution, and should the color adhere to the yarn and dye it, the probabilities are that it is a coal-tar color; if a red, it may contain arsenic. If the alcohol produces no effect, apply a drop of the bleaching powder solution to the surface of the sweetmeat; if the color fades out it is probably of vegetable origin and harmless.

"The poisonous color most frequently used is chrome yellow, a compound of chromium and lead. Its presence may be strongly suspected if the following tests have shown that none of the harmless yellows have been employed. The harmless yellows most commonly employed are turmeric, a vegetable color made from the root of a certain herb, fluorescein, a coal-tar yellow, and a number of vegetable yellows. Turmeric turns red when treated with ammonia. The other vegetable yellows fade when treated with the solution of bleaching powder. To detect fluorescein dissolve the candy in a tumbler of water and view the water in the sunlight against a black background. If fluorescein has been used, the green fluorescein will then be seen. When the tumbler is held between the eye and the light the color of the water appears yellow. If no results are obtained by any of these tests the suspected candy is probably colored by chrome yellow and is poisonous. Burnt umber, an iron-bearing earth frequently used to adulterate chocolate confections, may be detected in this way: Dissolve the confection in a glass of hot water; if a brown gritty residue remains un-

dissolved on the bottom the presence of the umber is indicated."

CORRIGENDUM.

Page 582, 1st column, 21st line, for "five drachms three times daily," read "twenty grains every eight hours, or ten grains every four hours."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 22 TO MAY 28, 1888.

SUTHERLAND, CHARLES, Colonel and Medical Director.—To inspect the Medical Department at St. Francis Barracks, Florida, Fort Barrancas, Florida, Mount Vernon Barracks, Alabama, and Jackson Barracks, Louisiana.—*S. O. 100, Division of the Atlantic*, May 19, 1888.

KIMBALL, J. P., Major and Surgeon.—Leave of absence extended two months.—*S. O. 117, A. G. O.*, May 21, 1888.

COWDREY, S. G., Captain and Assistant Surgeon.—Ordered to accompany the troops of the Sixteenth Infantry from Fort Bliss, Texas, to Fort Douglas, Utah Territory, as Medical Officer. Will return to his station upon the completion of said duty.—*S. O. 54, Department of Texas*, May 19, 1888.

MCCREERY, GEORGE, Captain and Assistant Surgeon.—To accompany Seventh Cavalry from Fort Meade, Dakota Territory, to Fort Riley, Kansas. From Fort Riley he will return to Fort Meade.—*S. O. 42, Department of Dakota*, May 17, 1888.

ROBERTSON, R. L., Lieutenant and Assistant Surgeon.—Will accompany from Fort Keogh, Montana Territory, the Fifth Infantry to the Department of Texas; returning to his station on the completion of the duty.—*S. O. 43, Department of Dakota*, May 18, 1888.

EWING, C. B., First Lieutenant and Assistant Surgeon.—Will accompany the Twenty-second Infantry, as Medical Officer, to the Department of Dakota; returning to his station on the completion of the duty.—*S. O. 56, Department of Missouri*, May 17, 1888.

BANISTER, W. B., First Lieutenant and Assistant Surgeon.—Granted leave of absence for two months, with permission to apply for an extension of twenty-seven days.—*S. O. 119, A. G. O.*, May 23, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MAY 26, 1888.

DICKSON, S. H., Passed Assistant Surgeon.—Detached from the Receiving Ship "Dale," and ordered to Marine Barracks, Washington, D. C.

NASH, F. S., Passed Assistant Surgeon.—Ordered to the Receiving Ship "Dale," in addition to present duties.

RUTH, MELANCTHON L., Surgeon.—Granted one year's leave of absence from date.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING MAY 26, 1888.

WYMAN, WALTER, Surgeon.—Leave of absence extended fourteen days, May 22, 1888.

MAGRUDER, G. M., Assistant Surgeon.—Relieved from duty at Marine Hospital, Chicago, Illinois, detailed as Medical Officer, Revenue Bark "Chase," during summer cruise, May 19, 1888.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the **NEWS** should be addressed to No. 1004 Walnut Street, Philadelphia.